Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL, AND OTHER IMPROVEMENTS.

VOLUME X.] NEW-YORK NOVEMBER 11, 1854. [NUMBER 9.

THE
SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY
At 128 Fulton Street, N. Y. (Sun Buildings.)
BY MUNN & COMPANY.

O. D. MUNN, S. H. WALES, A. E. BEACH.

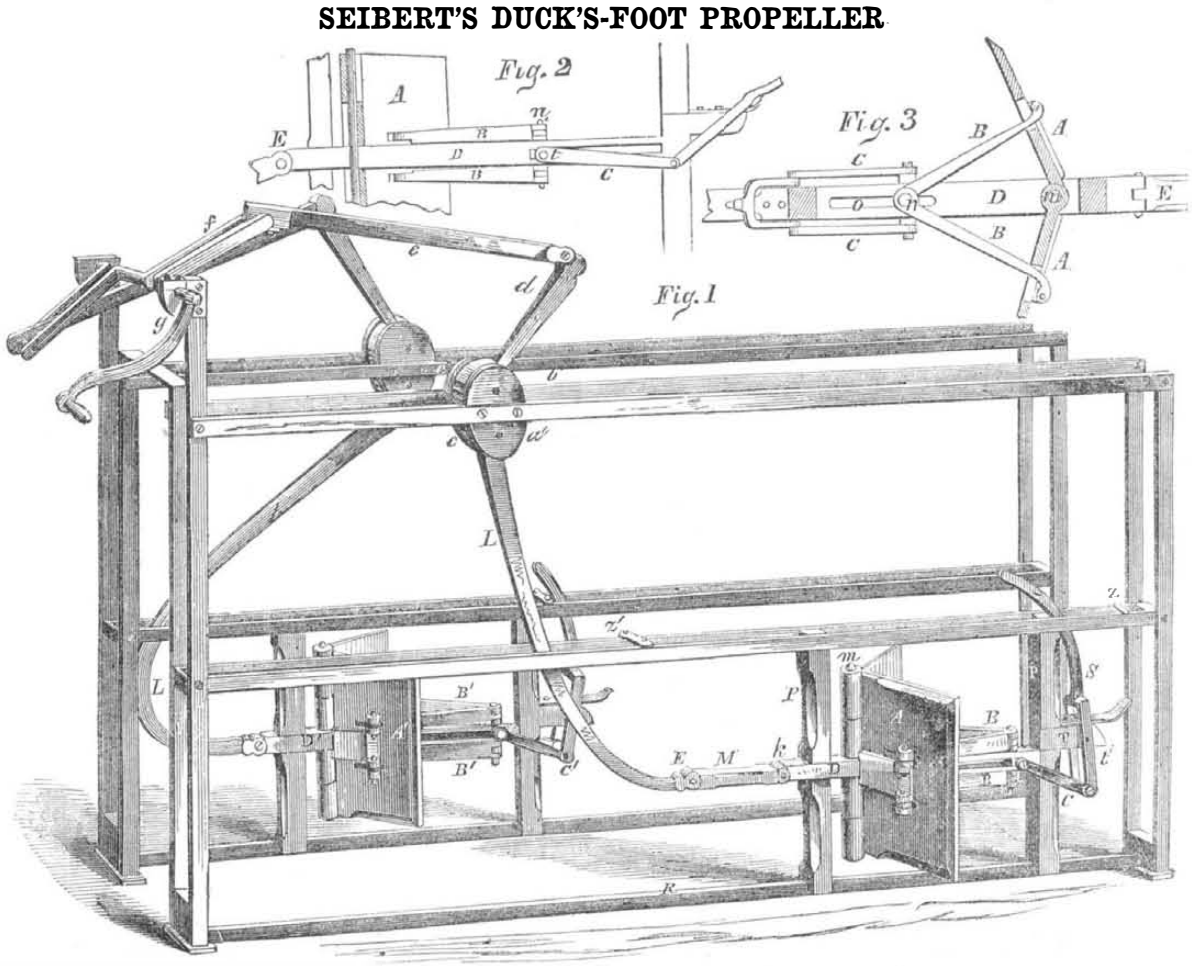
Agents.

H. Taylor, Baltimore, Md. | Dexter & Bro., New York.
Federhen & Co., Boston. | B. Dawson, Montreal, C. E.
Stokes & Bro., Philadelphia. | M. Boullemet, Mobile, Ala.
G. B. Mitchel, Savannah, Ga. | E. W. Wiley, New Orleans.
S. G. Courtenay, Charleston. | E. G. Fuller, Halifax, N. S.
D.M. Dewey, Rochester, N.Y. | S. W. Pease, Cincinnati, O.
Avery Bellford & Co., London | M. M. Gardissal & Co., Paris.

Responsible Agents may also be found in all the principal cities and towns in the United States.

TERMS—$2 a-year:—$1 in advance and the remainder in six months.

SEIBERT'S DUCK'S-FOOT PROPELLER



Improvement in Propellers.

The annexed engravings are views of an improvement in Duck's-Foot Propellers, for which a patent was granted to Geo. Seibert, formerly of Hagerstown, Md., on the 7th Nov., 1848, and to which we referred two weeks ago, in commenting upon a new propeller, constructed on this principle, as described by the New York *Tribune*.

Fig. 1 is a perspective view showing two propellers, one for each side; fig. 2 is a vertical section of a duck's-foot propeller and its actuating links, and fig. 3 is a plan view of the same. The same letters refer to like parts.

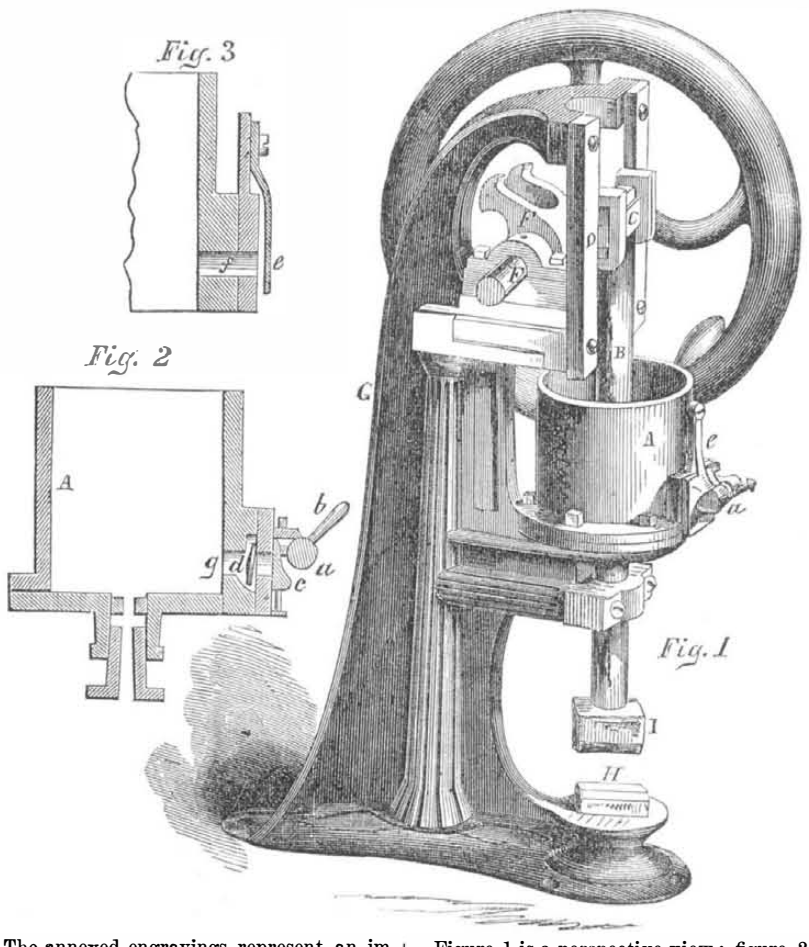
This propeller operates under water, and has a straight backward-and-forward motion. The blades are formed like the covers of a book, which are closed when drawn forward, but are spread out when pushed backward, so as to press against the water and force it back, thus giving motion to the vessel to which it is applied. A A are the two wings of the propeller, which is made exactly like a hinge with a pivot axis, *m*, which passes through a bar, D, connected by a joint, *k*, to the short arm, M, which is also united by a joint to the curved arm, L, firmly secured to a sector, *c*, with an axis, *a'*, which passes through a bearing box, *b*, and supports another sector, *c''*. The upper sector is attached to a jointed arm, *d*, which is connected to a rod, *e*, secured to the end of crank, *f*. By supposing power applied to the winch, *g*, or the shaft of crank, *f*, the sectors, *c c''*, will rock, and the teeth of the upper one move the under one in such a manner as to give the arm, L, a rocking —back-and-forth—motion, and thus operate the duck's-foot propeller backwards and forwards; P P are two guide bars, the upper parts of which move in a groove in the frame, and the lower parts have grooves, and embrace a rail, R, on which they slide.

The leaves of the propeller are opened and closed as follows:—B B' are two pair of compass arms secured by joints at their feet to the leaves, A A, and at their apex by a pivot, *n*, passing down through a slot, O, fig. 3, in the bar, D. This pivot also unites the arms, B, to a side lever, C, which is secured by a pin to a peculiar curved tappet lever. This tappet has a stirrup, *t'*, secured by an axis pin to a block, T, on which it vibrates. This tappet lever, when the guide bars, P, P, are pushed backwards, strike against the check block, Z, near the end of the stroke, and this vibrates it on its axis pin at T, drawing forward the lever, C, and the compass arms, B B', the pivot of which slides in the vertical slot, O, figure 3, and the pivot, *t*, of lever C, in the horizontal slot of the bar, D, thereby closing the leaves, A A, of the duck's-foot propeller, and allowing it to be drawn backward with but little resistance in the water. When the propeller has made its back stroke, the tappet lever, S, strikes the check block, Z', which throws its top towards the stern, thereby pushing back the lower end, and throwing the leaves, A A, open, so as to present a large propelling or resisting surface to the water. One of these propellers may be used in the central part of a boat at the stern, or two of them may be employed—one on each side, as shown in fig. 1.

The operations of this propeller, and the manner the leaves, A A, are opened and closed, will, we conceive, be readily understood by this description, as they are not very complex in motion or device.

More information may be obtained respecting it by letter addressed to Mr. Seibert, at Fairview, Washington Co., Md., of which place he is now a resident.

HUGHES' ATMOSPHERIC TRIP HAMMER.



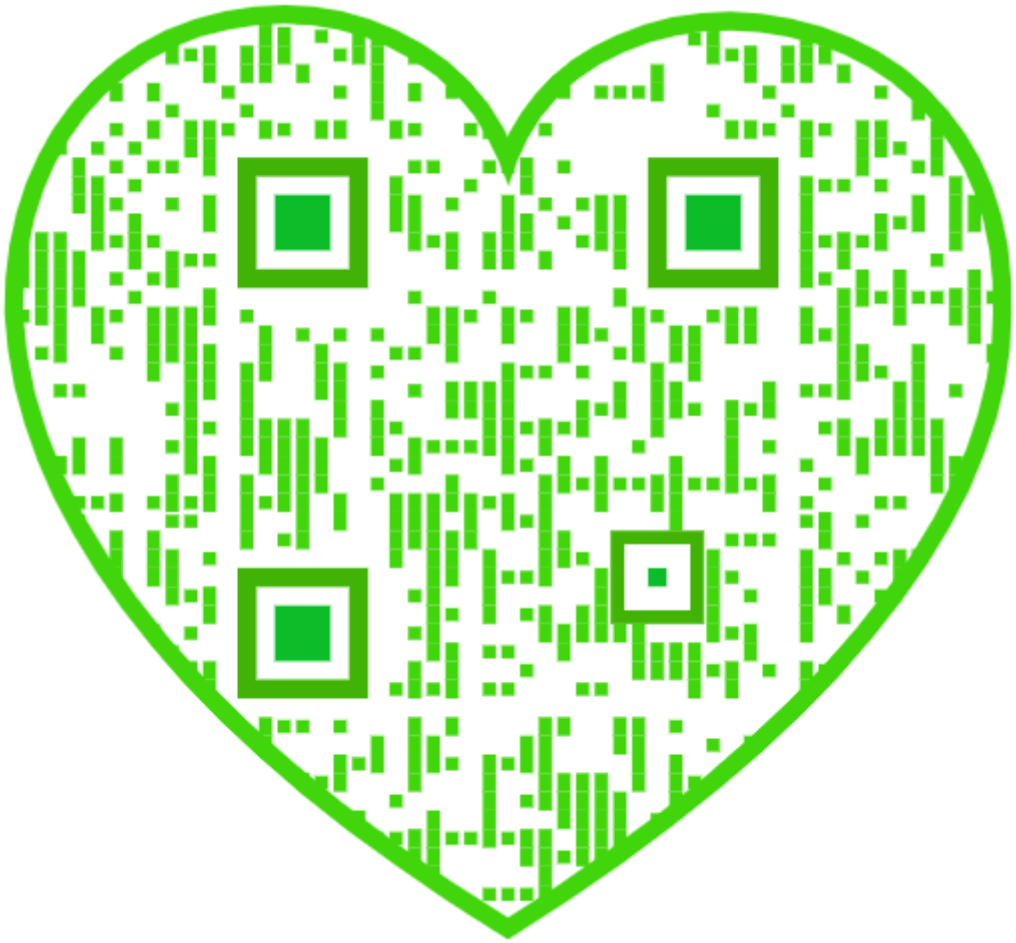
The annexed engravings represent an improvement in Trip Hammers, for which a United States patent was granted to Bernard Hughes, of Rochester, N. Y., on the 16th of last May, and since that period patents have been taken out by us in Europe.

Figure 1 is a perspective view; figure 2 a vertical section through the atmospheric cylinder, showing one of the regulating valves, and figure 3 is a broken vertical section through the cylinder showing a second regulating valve. Similar letters refer to like parts.

The nature of the invention consists in providing the rod of the hammer with a piston fitting and working in a cylinder which is so constructed and furnished with valves that the air may be excluded from under the piston, and admitted in such a manner and in such a degree as to control the force of the blow of the hammer at the pleasure of the operator; also to increase the force of the blow independent of the weight of the hammer.

The machinery is erected on and secured to a strong and neat iron frame. H is the anvil; I is the hammer secured to a vertical rod or shaft, B, which is furnished at the top part with a trip block at each side, which have slides running in guide grooves in the two upright standards, D, which are firmly secured to the head and to a block of the frame, G, by bolts and screws; E is the driving shaft with a fly wheel on it, at one side, and double toes or trippers, F, at the middle, which, as the shaft, E, is revolved, rotate between the standards, D, and lift up and let go the trip blocks, C, and consequently the hammer, giving to the latter its up and down reciprocating motion. On the hammer rod, B, is a piston fitting air tight into the cylinder, A, which is open at the top, but closed at the bottom, the rod, B, working through an air tight stuffing box in the bottom, as will be understood by referring to figure 2. On the side of this cylinder is a valve box having two valves, the one, *c*, figure 2, to allow air to pass from the outside to the inside of cylinder A, and the other, *e*, figure 3, to allow air to pass from the inside out, from under the piston. By the working of these two valves, the useful effects stated as comprising the nature of the invention, are obtained. The valve which allows the air to pass out of the cylinder is a nicely suspended spring plate valve, *e*, hung on a stud, figure

© 1854 SCIENTIFIC AMERICAN, INC.



3, covering the passage, *f*; it is cushioned on its inner surface. When the piston is working with the small slide valve, *c*, closed, the full pressure of the atmosphere is obtained on the piston. The tendency of the valve, *e*, is to open outward when the piston descends, consequently as the piston is raised a vacuum is created under it in the cylinder, and the air then presses on the outside of the plate valve, *e*, pressing it against the face of the box, and closing the port or passage, *f*. Working in this manner with a vacuum of fifteen lbs. on the square inch, and with a piston of only 12 inches diameter, the pressure will be 565 lbs. added to the weight of the hammer, with an increased velocity of motion. To regulate the blow and graduate its force, there are bearings secured on the sides of the valve box, and a small transverse roller shaft, *a*, figure 2, is secured in them. On this roller is a small stud for lifting the projection of the slide valve and raising it to admit air through the passage, *g*; this small slide valve is kept in its seat by a spring secured to its bottom, and it can only be raised upwards; *d* is a small flap valve opening inwards in the passage, *g*. Supposing valve, *c*, figure 2, to be open, and the valve, *e*, figure 3, to be completely closed, no air could pass out of the cylinder, A, consequently it would be impossible to strike a blow upon the anvil because of the resistance of the air (it requiring to be compressed) under the piston. But if we suppose the inlet slide valve, *c*, and the outlet valve, *e*, to be so regulated as to admit different quantities of air into, and out of the cylinder during each stroke, then any force of blow in the whole scale—from the maximum to the minimum—can be given, because the resistance can be regulated at will. This is done by a cam toe on the roller, *a*, figure 1, set in front of valve, *e*, and which, by turning handle *b*, can close the said valve entire, or so much of it as to allow the exact quantity of air to escape as is desired. By operating the handle, *b*, the slide valve, *c*, is raised, and the valve, *e*, actuated at the same time. By this method of operating these valves, an experienced attendant can graduate one blow so as to strike its full force, and the next one to come down so gently upon the anvil as to touch an egg and not crack it.

This trip hammer is very compact, occupying but a very small space, it gives a true vertical blow, and when made to work with a vacuum at about 14 lbs. pressure on the inch, there is always a cushion of air under the piston to make it start freely at the end of each stroke. Hammers of this kind have been in operation in Rochester for more than six months, and their qualities have been fully tested. They are now being manufactured by the Rochester Iron Works at the rate of six per week, and another company to make them is now in the process of organization in New England. Four different sizes are manufactured, so as to adapt them for heavy and light work—for forging iron and steel, and for hammering brass, tin, and copper, by tin and copper smiths.

More information may be obtained by letter addressed to Rufus Keeler, President of the Company, at Rochester, N. Y.

In No. 7 of the Scientific American, I find some deviations from my solution to the problem,—"How to cut Elbows of Stove Pipes by Rule and Compass," some of which I can only impute to misprinting. I would not mind them in any other paper but the Scientific American.

10th line. Drop the word "ten"

12th line. The proportion is 1 : 3·1416=radius : ×

16th line. Drop the word "ten"

19th line. From *a* 1 to *a*10.

33rd line. Distance between the "ordinates" does not—instead of "abscesses."

Adolph Mahler.

The Atlanta (Ga.) *Examiner* says, that a company of enterprising gentlemen, who some time since leased a lot of land on the Chattahoochee river, with a view of mining for silver, had met with great success. Three shafts have been sunk, and rich silver ore has been found in large quantities.

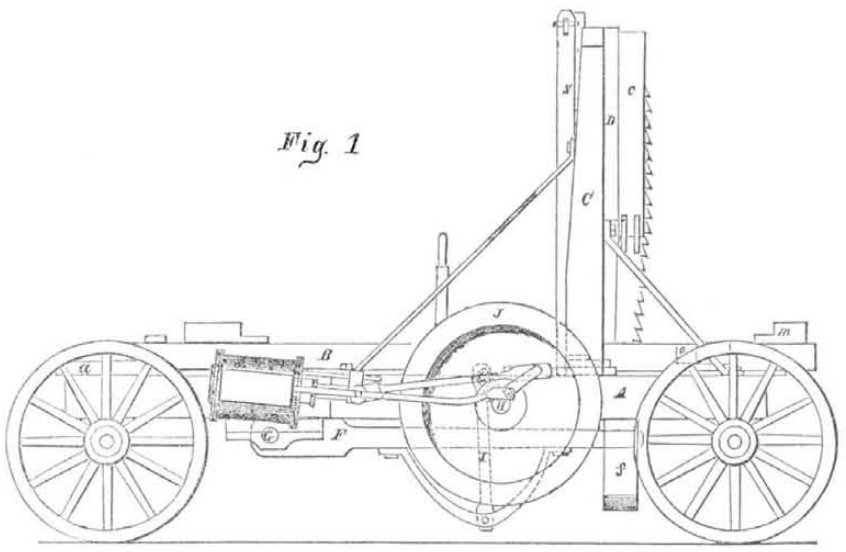
Indigestibility of Soup.

It is asserted by a late medical writer, that soup, with the exception of the vegetable matters and shreds of meat that float in it, is entirely indigestible in the stomachs of children. The stomach digests only solid food, even milk being coagulated into a curd to undergo this process, and yet there are many farmers who have long since given up the idea of raising fine calves on hay tea, who give their children soup for dinner, under the idea that it is very nourishing.—[Exchange.

[The same objection that is here urged against soup, may be advanced against the use of water as a drink, for assuredly, if all in soup, as is stated above, but its water, is digestible, then it must be the latter which is indigestible. Able physicians have considered good soup, partaken in moderate quantities, a very healthy diet.

IMPROVEMENT IN SAW MILLS.

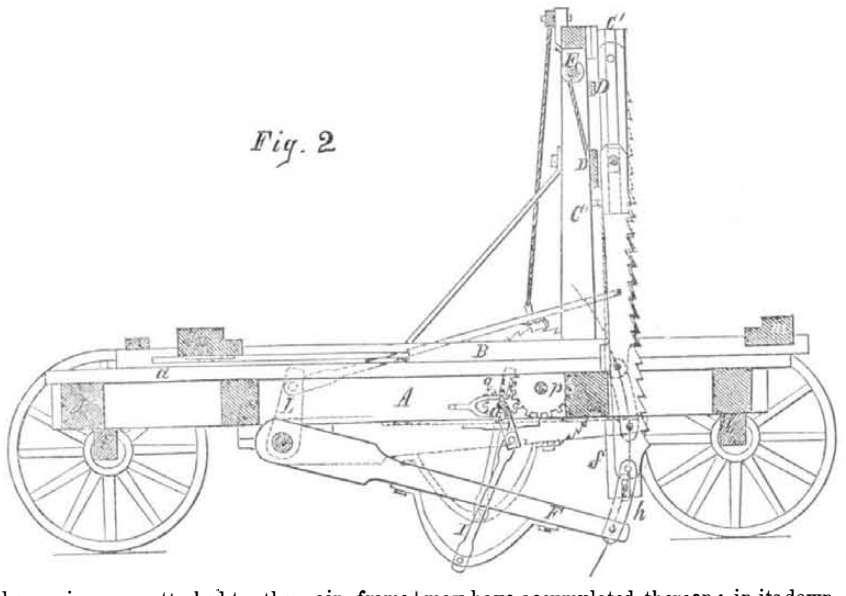
Fig. 1



On the 21st day of last February a patent was granted to Frederick T. Andrews, of Georgetown, D.C., now of Richmond, Va., for the improvement in saw mills represented by the annexed engravings, of which fig. 1 is a side elevation, and fig. 2 is a vertical longitudinal section.

The invention relates to that class of saw mills in which the vertical reciprocating saw is used, and it consists in communicating in a compact and convenient form, and in a more uniform, gradual, and effective manner, the usual advance movement to the saw during its downward action, and its receding motion during lts upward strokes, also freeing the saw from gum and sawdust, so as to make it cut more free and easy. The main framing, A, the ways, *a*, and carriage, B, are similar to those in an ordinary mill. C C′ are two up rights on each side of the main frame; they have grooves on their inner sides from the top downwards to receive a vertical sliding frame, D, to which are attached two V-shaped guides, *c c*′, at a suitable distance apart from the upper cross head of the saw to work between; at the lower ends of these guides are bolted adjustable clamps, which are intended to steady the saw above and near to the timber to be cut. The frame, D, together with the guides and clamps, is raised or lowered to suit the thickness of the log to be cut, so that the clamps which steady the saw will always be as near the log as convenient. This frame is elevated and lowered by a windlass, E, turned by handspikes, which wind the lifting chain round the roller. Below the level of

Fig. 2



the carriage, are attached to the main frame two V-shaped guides, *f*, to guide the vertical action of the lower cross head to which the saw is attached by a rocking link, *h*, the upper end of which is pinned to the saw, and the lower end connected to the end of the driving beam, F; the center of it swings on a wrist in the middle of the cross head, or it might be made with trunnions fitted into brasses, to slide between the guides, *f f*. The lever beam, F,—having its fulcrum on the rock shaft, G, and its extreme end attached to the rocking link, *h*,—will describe the arc of a circle, consequently in rising, as the end of it approaches the horizontal plane of its fulcrum, it will gradually extend the lower end of the rocking link beyond the vertical line of its axis, and cause the upper end, which is attached to the saw, to recede within said vertical line, thus drawing the saw away from its work in a line very nearly the angle of the back of the tooth, which is best adapted to free it from gum, or other substance which may have accumulated thereon; in its downward action the saw will be made to advance gradually and regularly to its work. Were the sliding rocking link dispensed with, and the lever beam, F, made to form a direct connection with the saw, a less effective and gradual receding action would be given to the saw, according to its stroke, with the same length of lever beam, and to make it longer would be objectionable on many accounts. The gradual and uniform action given both in receding and advancing, by the arrangement described, of the sliding rocking link with the lever beam and saw, effects the objects specified in describing the nature of the invention. The weight of the lever, F, is thrown entirely on the saw, to assist in its cut, and it acts as a counterbalance in its upward motion to equalize the work.—The motion is communicated to this lever by a crank pin, *i*, on the main shaft, H, through the pitman, I, and on the end of said shaft, outside of the main frame, A, is hung a fly wheel, J, from which—when used as a portable mill, as represented—projects a crank pin for the pitman of a steam engine. But when this saw mill is used in connection with other machinery, the power may be applied to the machinery by band and pulley. The feed motion is communicated to the carriage by a pinion on a cross shaft gearing into a rack on the under side of the carriage, in the usual way. A ratchet wheel is placed on the outside of the feed shaft, to feed up the log (it being secured in the ordinary way, with head and tail blocks, *m m*,) on the carriage during the upward motion of the saw, by a finger attached to and operated by a lever, L, on the end of rock shaft G; this finger is suspended by a cord to one end of a balance beam over head, the other end being attached to a rod, S, which reaches down and rests on the main frame, and bears up the finger out of gear with the ratchet wheel, when tripped by the projection O, on the side of the carriage.—There is a spur wheel, *p*, gearing into a pinion, *q*, which, is loose on the main shaft, H which can be clutched through the agency of a lever, at the will of the attendant, to gig back the carriage preparatory to making another cut. Beneath the main frame, at either end, are axles, *t t*, so that the entire mill, with steam engine attached, in regular working order and ready for use, can be mounted on wheels and transported from place to place at pleasure, a portable and compact saw mill, as represented in the figures.

The claims of the patent are, first, the method described of communicating the advance and receding motion to the saw for the purpose specified. Second, the combination and arrangement of the lever, F, and rocking link, *h*, with the saw, when operated by a crank, (or its equivalent) and pitman connected at any point between the fulcrum of the lever and the saw.

More information may be obtained by letter addressed to the patentee.

Brick Machines.

Gentlemen—As several of the manufacturers of this city are largely engaged in the fabrication of bricks, and therefore greatly interested in labor and time-saving machinery used in this branch of industry, I would respectfully request you, dear sirs, to induce the proprietors of one or two of the most improved patents for brick machines, to send their most explicit pamphlets, with price and descriptions, of the different sizes, to my subjoined address, as soon as possible and convenient to you, after which I shall take pains to make their advantages generally known. I have no doubt of the ultimate future success of American brick machines if they could be introduced here, as yet most of the work is done by hand, and the few machines used in the environs are very defective.

Relying on your well known liberality and love of progress, I remain, yours,

Max Wagner.

Munich, Bavaria, Oct. 5th, 1854.

California Academy of Natural Science.

We have received from some scientific friend in San Francisco, a copy of the proceedings of the above Association, held at their rooms Sept. 4th. We perceive that our brother editor, W. J. Steene, of the *Pacific*, presented a curious specimen of a cabbage grown on the Sacramento bottoms; Dr. Kelly presented specimens of a plant from the salt marshes of the Bay, named Salt Weed, from its being often coated with crystals of salt. Dr. Ayres seems to be an active explorer among the finny tribes. He has discovered a number of new species in California, and he has always something new at every meeting of the Academy.

Gun Cotton for Cannon.

Some very interesting experiments have recently been tried at Vienna by the artillery with "exploding cotton" instead of gunpowder; they have succeeded so well that the cotton will in future be used. New 6-pounders have been cast, which weigh 6 cwt. less than those formerly used, and they answer the purpose—if exploding cotton is employed instead of gun powder—perfectly well.

© 1854 SCIENTIFIC AMERICAN, INC.

British Association for the Advancement of Science.—No. 3.

MEDICINAL LEECHES—John Richardson, surgeon-dentist, of Hull, read a paper "On the medicinal leech, and its mode of reproduction." The object of the paper was to show that the medicinal leech is oviparous, it having been a disputed question among naturalists whether the animal is oviparous or viviparous, or both. The author showed that by procuring the ova he had been able to hatch leeches without the aid of the mother, and he produced some fine, though small specimens. He explained the developement from the egg, and exhibited some of the *cocoons* which, coated with a viscid mucous secreted by the animal, had the shape of a cockle, and resembled sponge. The author said that by accustoming the animal to its own peculiar habits, he had been able to grow an immense number of leeches. Professor Henslow said that the process which Mr. Richardson had described was very much like what took place with regard to the common horse leech. Dr. Lankester said that sometimes the eggs of the leech had been found mistaken for sponges; not only had one naturalist made the mistake, but several had done so.

ELEVATION OF LAND—R. Chambers read a paper on "Glacial Phenomena in Scotland," in which he showed how a double beach extended on the coast, rising from 40 to 100 ft. high, indicating that the land had gradually risen, but that 10,000 years at least must have intervened. He further enlarged upon the numerous traces of glacial action in Scotland, which indicated a previously intensely cold climate.

HOT AIR ENGINES—A paper was read on this subject by W. J. M. Rankine, C. E., one of the patentees of the engine illustrated on page 19, this volume SCIENTIFIC AMERICAN. It embraced four sections; in the first were explained the fundamental laws of the mechanical action of heat, and their application to determine the efficiency of theoretically perfect engines working between given limits of temperature. It stated "that, as the efficiency increases with the distance between those limits, and it is easy to employ air with safety at temperatures far exceeding that at which the pressure of steam would cease to be safe and managable, and therefore the maximum theoretical efficiency of air-engines, consistent with safety, is much higher than that of steam-engines. For example, at the temperature of 650° Fah., at which the air-engine has been successfully worked, the pressure of steam is 2100 lbs. on the square inch, while that of air is optional, being regulated by the density at which the air is employed."

This, we conceive to be an argument in favor of steam and against hot-air, for the efficiency of any propelling agent depends upon its pressure, not its heat. In calculating the power of an engine, the pressure on the area of piston, and the velocity of piston, is the index of its power. Well, upon this plain principle, as air at 491° exerts a pressure of only 15 lbs. on the square inch, and as air at 650° can exert a pressure of a little more than 17 lbs on the square inch, we have steam at 650°, 2100 lbs. pressure, and air of the same temperature at only a little over 20 lbs.—Here then, any man not blinded by enthusiasm in favor of hot-air, can see that steam has greatly the advantage. The concluding part of the above extract is calculated to delude those who have not investigated the subject thoroughly, there being no advantage in using compressed air of great density.

IRON SHIPS AND COMPASSES—An important discussion recently took place relative to the comparative trustworthiness of compasses on board iron ships. During the debate, it was argued that careful examinations, made by Dr. Scoresby and other scientific men, tend to show that the variations of compasses are nearly unavoidable on board of iron vessels; that except where azerunth, or mast-head compasses are used, there is no safety whatsoever, and that even with both of these, observations cannot be taken too often, or too much care exercised. Facts were adduced to prove that particularly in certain latitudes and under certain conditions of the vessel itself, compasses will unavoidably vary; and that sometimes out of many on board an iron ship, no two will agree. In the *City of Philadelphia*, her commander, Capt. Leitch, took observations of the sun each day from the time he left Liverpool until the day preceding the disaster off Cape Race. On that day the weather was foggy, and having only his compasses to trust to, he lost the right direction, and notwithstanding all his experience and skill as a navigator, his vessel was wrecked.

Is Medicine a Science.

Dr. Parker, of this city, recently delivered a lecture in the Medical College, in which he touched clearly and eloquently on this question. He said:

"It is a proverb, that 'Doctors disagree,' and therefore, they cannot be guided by any fixed scientific principles.

He would ask, in what science we would find all its followers harmoniously united?—In none. And why then should the disagreement of doctors be alleged as an argument against their science? The facts with which they have to do, are much more difficult of translation than those of other sciences.

But, if a science, it is very incomplete,—though its principles are as fixed as those of any other of the natural sciences; and its progress to perfection, if it has not been so great within the last twenty years, was much earlier commenced, and is carried on with a surer and steadier progress. To some notable instances of progress, allusion might be made, if delicacy did not forbid. Every medical man knows, that in the treatment of those fearful diseases, consumption and cancers, the labors of men on both sides of the Atlantic have enabled us to make great advances. The existence of either of them is not now a doom to death. Consumption has been cured; and now that it has been demonstrated that cavities already formed in the lungs can be safely injected with medicaments, we cannot but hope the time will come, when these fearful maladies shall prove as amenable to treatment as other diseases.

Another great cause of unbelief in medical science is, that it happens to the most diligent and skillful to lose their patients.—But, alas, all are under the same penalty, and death has passed on all.

The practice of medicine is based upon true science, stretching back beyond the age of Hippocrates, than whom no greater genius is boasted by his nation, enlarged and built up by the labors of men in every age, second to none in intellect, industry, and integrity; never lagging in its progress behind other sciences, but always in the foremost rank, and now embracing in its students a body of men who, for all desirable qualities, fear no comparison with any other class."

American Progress in Manufacture.

"We manufacture here at this day every thing which the heart of man can desire; one by one we have gradually encroached upon the peculiar privileges of our transatlantic neighbors, till now there is nothing which is not, or cannot be manufactured here. The looms of Manchester or Birmingham, the forges of Sheffield, the *ateliers* of Sevres or Brussels, all have their counterparts here,—yet some years ago an American who wore a coat of American cloth, or carried a knife of American steel, was deemed behind the age.

One by one has England yielded her prerogatives in different branches of man's workmanship. Five years ago, Americans admitted that we could never equal England in the construction of steamships. That theory has been at length successfully refuted and will never be repeated so long as the *Atlantic*, *Pacific*, or *Baltic*, and would we could add the *Arctic*, plow the ocean. Again, it has always been and still is doubted whether we could ever equal England in the manufacture of cutlery. Many a good and patriotic American is here ready reluctantly to admit that England yet bears the palm, still indulging the fond hope that the day is not far distant when we can compete with and excel them. We think that the hour is come. Rodgers & Sheffield have long been the synonyms of all that is excellent in this department of manufacture, but we think a strong rival to their fame has arisen. We have made plows and plowshares, rakes and hoes which are used in every soil on the globe; clocks, to chime the hours in every nation's ears, and now we hope we are making swords to hang at every soldier's side, and knives to be carried in every citizen's pocket. Plated ware, more particularly, we have been obliged to purchase from abroad hitherto, as the process which has brought it to so much perfection seemed to be unknown here. But it is no longer so. Take for example the work of the Ames Manufacturing Company, of Chicopee, Mass. Who does not recollect its beautiful display at the Crystal Palace? In articles of domestic use how successful it has been. Its cake-baskets, side dishes, waiters, casters, &c. Their style and perfection do really, without any exaggeration, exceed those of any imported goods we ever saw. After many years of toil and study, this company has been enabled to produce these articles, plated on German silver, in quality, material, and appearance, equal at least to that so long and favorably known as Sheffield plate. If Americans should be proud of their ocean steamers, their clipper ships, their Lowell mills, and their large machine shops, they certainly ought not to overlook the more obscure, but not less important progress which our Chicopee friends have made in this both useful and ornamental art."

[The above extract is from the correspondence of the *Commercial Advertiser*, and is truly gratifying to every American citizen.—Those Americans, however, who five years ago admitted we could never equal England in making steamships, &c., were not amongst our acquaintances. We can make anything in this country if we can get the material (raw stuffs,) that is now made in any country in the world. And why not? our people have genius equal to any other, and we can obtain mechanics and artists from any part of the world, to engage in any new branch of manufacture.

The Flying Ship.

Two years or more have elapsed since Prof. Rufus Porter issued his proposals for constructing a machine for carrying passengers through the air, and commenced receiving subscriptions to aid him in his novel enterprise. The model which he exhibited in Carusi's Saloon worked very well, and convinced some of the spectators of the feasibility of his plans. With the perseverance which attaches to enthusiastic genius, he set himself to work, determined, if he could, to construct a machine of sufficient "float" and steam power to convey a pleasure party to the New York Crystal Palace, and fixed the period of departure towards the close of last autumn. Since that time, however, we have heard nothing of the efforts of the artist, but several visionaries who were anxious to take the voyage are still awaiting, with impatience, the completion of the apparatus, while gentlemen who have invested funds in the speculation have abandoned the hope of a declaration of dividend from the profits of the concern.

Mr. Porter is a fair specimen of genius struggling with difficulties; and, for his own sake, it is to be regretted that he did not turn his talents into a channel of business which could promise to yield him prompt returns for the cash, intellect, and mechanical ingenuity invested in the enterprise.—[Washington Sentinel.

Magnetic Observatory.

During the past year a magnetic observatory has been erected within the grounds of the Smithsonian Institution. It principally consists of an underground room, enclosed within two walls, (to insure an equable temperature,) between which a current of air is allowed to pass, in order to prevent dampness. This observatory has been supplied with a set of apparatus for determining the continued variations in direction and intensity of terrestrial magnetism. By an ingenious application of the photographic process, the invention of Mr. Brooks, of England, the instruments are made to record, on a sheet of sensitive paper moved by clock-work, their own motions. It is proposed to keep these instruments constantly in operation, for the purpose of comparing results with other observations of a similar character in different parts of the world, and also for the purpose of furnishing a standard to which the observations made at various points by the Coast Survey, and the different scientific explorations which are now in progress in the western portions of the United States, may be referred, and with which they may be compared.

All Fools not Dead Yet.

A queer case was lately tried in Albany, N. Y., wherein a charge was brought against a certain Dr. Duval for playing some extraordinary feats of legerdemain on some green geese. One man—James Diamond—being sworn, stated that he called on Dr. Duval, *alias* Andrews, and told him that he understood that he had things to find hidden treasure; he said he had; that he could let deponent have one for $10; he said he hadn't the money, and could give him but $4,50; Andrews said he would let him have one for that now, and trust deponent for the remainder; he then gave deponent the bottle produced in the case shown, and deponent paid him $4,50; a clerk in the office told him what to do with the bottle: take it to a field where he thought treasures were hid; he must kneel down on his left knee, and rest his right arm on his right knee, and suspend the indicator by winding the string three times around the end of his forefinger; put all his attention on the indicator, and watch which way it moved; if it moved he must mark the place; then move across and mark four places in the shape of a cross, get the center as near as he could, and then he would find the treasure to a certainty. He tried the indicator a great many times in Waterford, but never found any treasures.

We scarcely suspected that there was one such a simpleton as this in our country, but it came out according to the statements of this magic doctor, that he had succeeded in deluding quite a number persons by bamboozling them with far more ridiculous notions than the above.

Railroad Collisions.

A terrific railroad collision took place on the Great Western Railroad, Canada West, on the 27th ult., whereby no less than fifty-seven persons—mostly emigrants going West—were killed, and fifty-one wounded. The passenger train was four hours behind time,—caused by the bursting of a cylinder head, and was proceeding at the rate of 20 miles per hour, when it met a train carrying gravel, going at the rate of 12 miles per hour.—The shock was terrific, and the scene heart-rending. The first passenger car was of the second class, conveying a number of German families to their new home in the far west. Had this railroad been constructed with a double track, or employed a railroad telegraph, this accident might have been prevented. No railroad should be allowed without having a special telegraph, or a double track. What a sad consummation of life to these poor Germans who had left Fatherland—the scenes of childhood and early affections—with bright hopes, to establish a better home for themselves and children in the wilderness.

American Clippers in England.

Since the abolition of the British shipping registry laws, a great number of American-built ships have become the adopted clippers of British merchants, and are employed in every trade, such as the India, Chinese, American, and Australian. The American clipper-built ship *Red Jacket*, by recent accounts from Liverpool, has made the quickest trip out to Australia from Liverpool and back, ever performed. The run out was accomplished in 69½ days, and the return voyage in 78½ days. These facts speak volumes in favor of the superiority of American built ships, and the progress made by our countrymen in nautical architecture. The absurd tunnage laws of Great Britain operated for a long period against improvements in the form of ships, to render them better sailers.

© 1854 SCIENTIFIC AMERICAN, INC.

New Inventions.

Valve Gear for Locomotives.

Various devices have been employed for the purposes of operating the valves of locomotives so as to cut off at any portion of the stroke, and also to give steam during the whole length of stroke, at the will of the engineer. An improvement upon those devices heretofore employed, has been devised by James Freeland, of Alleghany City, Pa., who has taken measures to secure the same by patent. The object of it is to transmit motion from the common eccentric to the slide valve in such a manner that the whole or a greater part of the movement of the valve may be performed during a very small portion of the revolution of the eccentric, whereby the full width of opening may be given to the steam and exhaust ports of the cylinder, during a very small portion of the stroke. The rock shaft of the slide valve carries an eccentric arm, which is connected with the valve arm on the common valve shaft by means of a lever, and an arc-formed slot, a rocker, and links, all of which are arranged and combined to effect the objects specified.

Carving Machine.

An improvement in pantograph carving machines has been invented by Edwin Allen, of South Windham, Conn., the nature of which consists in the combination of two pantographs in such a manner, that a tracer and cutting tool applied thereto may be capable of moving, not only over every point in a plane, as in a single pantograph, but also perpendicularly to the plane, for the purpose of tracing over an undulating surface, and cutting a corresponding one. By this combination, statues, bas-reliefs, and ornamental compositions of an extremely complicated character, may be carved to pattern with great accuracy. Measures have been taken to secure a patent.

Oval Turning Lathe.

Messrs. Cahoon & Ross, of La Grange, Mo., have taken measures to secure a patent for an improvement relating to lathes for turning spokes and other articles of oval shape, which is designed to simplify their construction and render them more perfect. The nature of the invention consists in providing the face plate of the spindle with a sliding rest in combination with a sliding standard, that its axis can be moved with great facility out of line with the axis of the spindle, to stand eccentric thereto, and also the axis of the wood to be turned as it revolves, to describe an oval, so that, as the wood comes in contact with a stationary cutter, it will be turned into spokes and such like articles, for which the lathe is set.

Machine for Filing Saws.

The filing of saws by machinery in an accurate manner, and to operate equally well on saws of different sizes, is a matter of no small importance. Various machines have been invented to accomplish this object, and some have been illustrated and noticed in our columns. An improvement on those heretofore used has been made by C. W. Buck, of Norway, Me., which consists in having a cross bar in the file frame to which adjustable file holders are attached, and which, by being moved laterally, (the bar) through slots in the frame which holds the saw, the teeth of the saw are filed with great exactness. Mr. Buck has taken measures to secure a patent for his improvement.

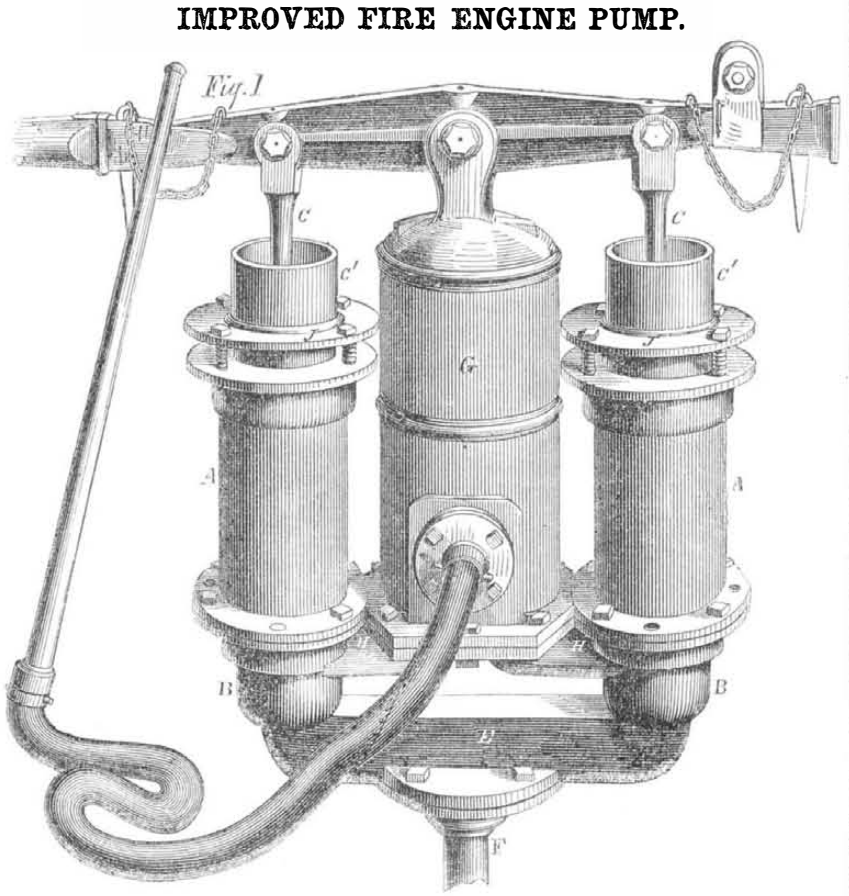
Iron Shutters.

An improvement in iron rolling shutters has been made by Charles Mettam, architect, this city, which consists in giving the slats an arched form in the central part, and a flat form towards the edges, so as to insure greater stiffness to prevent deflection, and at the same time produce a flat close lap when unrolled, like that of the flat slat; also to afford the same facility for rolling up. Rolling iron slat shutters are fast superseding all others for stores and warehouses, especially those on the principal stories. They can be rolled up so easily into such a small space, and are so safe against the operations of the burglar, that we do not wonder at their rapid and extensive application within the past five years. Mr. Mettam has taken measures to secure a patent for his improvement.

Hanging Saws.

An easy method of taking a saw from its gate, and securing it in its place again with the greatest accuracy and dispatch, has always been a desirable object. These objects have been obtained in a very satisfactory manner by T. M. Chapman, of Old Town, Me., who has applied for a patent. The nature of the improvement consists in having a stop at each side of the saw—both at its upper and lower ends—said stops being placed in stocks rendered adjustable, so that the saw can be taken from the gate and also secured therein with accuracy, in a very short space of time, and even by a very unexperienced person.

IMPROVED FIRE ENGINE PUMP.



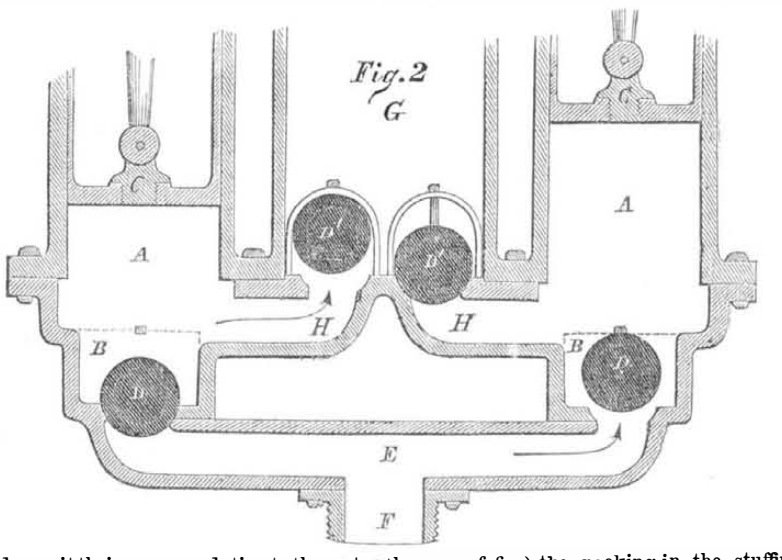
The annexed engravings illustrate a very excellent improvement in pumps, by Mr. Ambrose Tower, of this city, who has made application for a patent.

Figure 1 is a side elevation, and fig. 2 is a side sectional elevation. Similar letters of reference indicate the same parts.

The great object of the inventor in this improvement has been to construct a pump, which, while it serves all the purposes of the ordinary lift and force pump, may also be used at any moment as an effective fire engine; as such it requires to be substantially made, and to be free from liability to disorder, whether by choking or the wearing of the parts.

This pump is furnished with ball valves, D D′—double ball valves would be a more suitable term, for each valve is composed of two spheres, viz.: a central metallic sphere covered with india rubber, or other suitable elastic substance. In consequence of this elastic covering the balls always fit their seats closely, while the rush of the water causes the valves partially to revolve at every stroke, so that the surface contact of the valves, with their seats, is continually changing. Hence the wear of the valves is even, and very slight.

The spherical form and elasticity of the valves are safeguards against the choking of the pump. The valves being free from hinges and other appurtenances, it is plain that foreign substances can find no lodgment, even if they did it would matter little, since the valves are self adjusting, and their elasticity would permit their accommodation to the seats and to any foreign matter that happened to be left upon them.



The plungers, C, are hollow, the connecting rods, C′, being attached at the bottom thereof, as shown. Instead of packing the piston head in the common manner, the vacuum is produced by causing the plungers—which are almost of the same size as the pump barrels—to pass through stuffing boxes, J. If from long use, or unusual pressure, (as in the case of fire) the packing in the stuffing boxes becomes loose, it is quickly tightened, without removing the plungers, by turning the stuffing box screws. The inventor regards this as a very desirable advantage over ordinary pumps.

In the operation of this invention the water enters the supply pipe, F, chamber, E, and passes through valve boxes, B, and air chamber pipes, H, alternately, into the air chamber, G, whence it is discharged by hose pipe in the usual manner.

As a ship's bilge pump this improvement is of great utility, since grain and other articles may be carried in bulk without any danger of choking the valves; the same pump is also available in case of fire. There is another novelty connected with this pump, when used on ship board, that deserves mention. By applying a whistle, which Mr. Tower's furnishes, to the escape aperture of the air chamber, an alarm, equal to the steam whistle, is produced. In foggy weather this contrivance will be found very serviceable, as the inventor states that the alarm can be eard for a very long distance.

Placed upon a small platform with wheels, the pump is adapted as a fire engine for steamboats, villages. &c., the cost being very small when compared with ordinary engines.

The ends of the brake bar, L, are furnished with cavities into which the brake levers are introduced. The power of the pump may at any time be increased by lengthening the levers.

Further information may be had on application to the inventor, No. 93 Cedar st., New York.

Grinding Circular Saws.

William Clemsen, of Boston, Mass., has taken measures to secure a patent for an improvement in machinery for grinding circular saws. The two faces of the saw are simultaneously brought in contact with two or more grindstones on each side of the saw.—These stones are so arranged as to be adjustable in their frames, so that they can be set to grind saws of different thicknesses. The axes of the stones are set at right angles to the axis of the saw to be ground, for the peripheries of the stones to act upon the saw.

Fork Bending Machine.

An improved machine for bending hay and other forks for agricultural purposes, has been invented by Nathan Brand, of Leonardsville, N. Y., who has taken measures to secure a patent for the same. The nature of the improvement consists in the combination of a stationary and movable jaw and movable side levers constructed and arranged in such a manner that the forks after leaving the hands of the forger, have their tines and shanks bent in it in the most correct and expeditious manner.

New Railroad Brake.

The *Courier* describes a new brake for railroad cars, an invention of Col. Elisha E. Rice, of Hallowell, Me., which, it thinks, will ultimately be adopted by the railway corporations of the country. The brake is in the form of a shoe, is located between the wheels, and is intended to act upon the rail, instead of upon the wheel. It is worked by levers in precisely the same manner as the present wheel brakes. It is composed of a substance softer than the rail, so that there can be very little expense on account of "wear and tear." When the train is in motion, the "shoe," which turns up at each end. so as to avoid hitting bluntly any slight unevenness, is about a quarter of an inch from the rail, and when the lever is applied, the "shoe" is pressed down in such a manner as to lift the wheels from the track. The capacity of Mr. Rice's invention was tested on Saturday last, on the Kennebec and Portland Railroad, on a baggage train, to the entire satisfaction of the superintendent.—[N. E. Farmer.

[This Brake appears to be the same in its method of action as the one of Benjn. Burling, Danville, N. Y., illustrated on page 252 Vol. 4, Scientific American. On the page referred to, nearly the same language as the above is employed, such as "forcing down the shoe wedge (brake) under the wheels, and raising them off the track."

The Crystal Palace.

This Building for exhibition purposes closed last week, but during the removal of goods, and the sales by auction within the Palace, visitors will be admitted for one shilling each. The paintings and the statuary are not to be disturbed for the present.

© 1854 SCIENTIFIC AMERICAN, INC.

Scientific American.

NEW YORK, NOVEMBER 11, 1854.

War, and its Effects upon Mechanics and Inventors.

"It is an ill wind that blows nobody any good." If a hurricane sweeps across the country, and in its desolate track leaves prostrate a dwelling, and perchance destroys the life of a human being, it would not require any great stretch of the imagination to think of the builder and the undertaker as likely to find their business increased out of this evil wind. Providentially we are obliged to live upon each other, not literally as cannibals, or human flesh eaters, but in the way of business and social enjoyment.

There is now raging in and about the oriental seas a great war,—human beings are armed with bludgeon, cutlass, and sundry other *harmonizing* projectiles, and are actually engaged in killing each other and bombarding and blowing up the cities and villages of an innocent population. This barbarous business (for war is barbarous) is conducted on one side by the two most enlightened nations of Europe, and the science and skill of genius is taxed to its utmost in contriving mighty engines of destruction. If any man could have invented, one month ago, a machine capable, at one mighty eruption, of throwing down the stronghold of Sevastapol,—even to the swift destruction of its men, women, and children, whose only offence is one which Nature and Nature's God has forced upon them,—orders of the Garter, Bath, St. George, Cross of the Legion of Honor, etc., and a princely fortune, would have all been showered upon him to his heart's content, for England and France have never proved ungrateful to their men of genius, whether civil, military, or scientific. The question naturally arises, Who reaps the benefit of this carnage and slaughter? Surely not Russia, with her blockaded ports, prostrate commerce, crippled resources, besieged cities, and suffering, wounded populace, whose cries and groans pierce the very heavens. Not England and France, with their stupendous national debts, and whose best blood is wasting upon foreign shores from the effects of war and pestilence; for nationally speaking, the Eastern war is an incalculable disaster, and is weighing most heavily upon the exchequer of every participating nation.—But "it is an ill wind that blows nobody any good," and while Christianity is bleeding at every pore, and the nations in conflict are seeking every expedient except the right one, to relieve themselves from the unhappy consequences which are being entailed upon them, the hammers of Birmingham are redolent with the sound of busy industry forging out the means of destruction. The mechanics and the manufacturers of England and France are reaping the incidental advantages growing out of all this human destruction, and it seems almost incredible to those away from the seaboard, where commerce centers, that the ill effects of the war should be felt so many thousand miles away from it as we are, still this is true. Our once active commerce in the Mediterranean is tied up to our wharves with strong cables, and good stanch vessels are begging in our harbors for another journey upon the broad ocean. The current of trade in this country runs sluggish, and depression seems to have settled down, briefly, upon the hopes of many of our manufacturing establishments.

It is a good time to develope and produce improvements; and if at the present moment things are dull with us, there is a great and expansive field open in Great Britain and upon the continent of Europe. We publish in another column a letter all the way from Bavaria, in which the writer asks about our excellent brick machines. He has seen them noticed in the SCIENTIFIC AMERICAN: such is the ubiquity of its circulation.

We have now before us a letter from an enterprising firm in London, which is suggestive of the subject under consideration. One of the firm had just returned from Manchester and other great manufacturing marts, and gives a flattering account of affairs in all those busy districts. He represents that orders for patent machinery were refused by several concerns as being calculated to draw them from their regular business. Many also were so completely occupied with government contracts for the war and its requirements, that they could think of nothing more. Improvements in cotton machinery, he says, will find their full value at this time; also self-acting mechanism of all sorts; and that the people are fast falling into our track, and are looking out for time and labor-saving machinery. Some of the recently established houses are working themselves into profitable connections by adopting improvements, and by attending to affairs rejected by the larger establishments as beneath their notice. Railway managers are coming to their senses, and are more open to the favorable contemplation of improvements calculated to reduce their working expenses and cost of plans.

This is as it should be, or rather ought to have been from the commencement of those gigantic operations, and there would not have been better property in existence. The larger establishments being at work almost exclusively for the government, the smaller ones are left to supply the great demand for machinery designed for home use; this opens fine opportunities for inventions of a practical and useful character. English periodicals are slow to acknowledge the fact, but the people will, some how or other, in spite of them, bear testimony to the skill of American inventors in the production of simple and effective mechanism. Several patents secured through our agency in foreign countries, have provedto be of much value to the patentees.

We state this fact as an encouragement to American inventors. It is worth something even to know that our efforts and productions are appreciated. It is worth more to find them a source of remuneration and value to their originators. Genius is upon tireless wings, and it must go on to higher and mightier accomplishments, because the necessities of the times are of a Protean character, and what is useful to-day may be called upon to-morrow to surrender its office for something more perfectly adapted to its requirements.

The inventor and the mechanic are the master-spirits of Great Britain. Her people understand this fact better than we do: take them away, and the Allied armies would be compelled to leave Russia in her glory, and seek refuge at home amidst the retreats of England and France. If there are wars to prosecute, there is no class more deserving of the advantages to be reaped from its destructive tendencies than the inventor and the mechanic.

India Rubber for Ever.

Much as we have extolled the tough and elastic qualities of india rubber as applied to law and the arts, every new development, so far as it relates to its excellent adaptations for extending law business—rendering it more durable and elastic—seems to rebuke us for being far too cool and modest in our language. At the term of the U. S. Circuit Court, held in this city, before Judge Betts, in June last, there was a trial for an infringement of Chaffee's india rubber patent, Horace H. Day being the plaintiff, and the New England Car Spring Company the defendants. The counsel for the latter, Chas. O'Connor and James H. Brady, claimed the right for their clients of using the patent of Chaffee by a license which was produced, made to them in writing by Wm. Judson, under his hand and seal, for $20,000, bearing date Nov. 20, 1851, under Chaffee's extended patent. Upon the presentation of this paper—or license—to the Court, the counsel of Day, Mr. Stoughton, called witnesses to prove that Wm. Judson, who granted the license, was the attorney of Chaffee, and had obtained the instrument by fraudulent representations and practices.—The counsel for defendants objected to such testimony on a trial at law, and insisted that a specialty could only be impeached for fraud by a bill in equity filed against all parties having an interest in the instrument (license,) praying for it to be set aside and cancelled. Judge Betts decided that it was competent for the court on such a trial to take such evidence, and so the trial went on, but was terminated indecisively, by the sudden death of one of the Jury. In summing up for the defense on that occasion, Mr. O'Connor declared the decision of the Court, regarding such testimony, contrary to law, and offered $1,000 to any person who could produce a case from Johnson's *Reports* in support of it. The offer was not taken up, but Judge Betts has just published his opinions respecting the controverted point at great length, quoting innumerable authorities in favor of his decision, and we think it is likely that if an appeal be taken to the Supreme Court of the United States, it will be sustained. At any rate, it is an important point of law, in relation to patent property, and we present it in substance, for the information of all interested in such property. The case being an india rubber one it is still before the Court, and will not come up again before the next term—in April 1855—as it was brought up on the 31st ult., (Tuesday last week) and postponed to the next term, because the plaintiff was not ready to proceed. In view of such knotty points of law involved in this case, and the checks and delays already thrown in the way of a complete decision, it may not be terminated for some years.

The Coal Industry of the United States.

It is scarcely possible to appreciate the vast internal resources of the United States; they are unequalled by those of any other country; no person can doubt this after reading "Taylor's Statistics of Coal." Our bituminous coal fields embrace an area of 133,132 square miles, whilst that of all Europe amounts to only 17,504 miles. Yet with all our inexhaustible coal fields, some of them the easiest worked in the world, our coal trade is but of yesterday in comparison with that of England. The great abundance of wood found in the Atlantic States by the early settlers, afforded an abundance of cheap and clean fuel for a long time, but owing to it having become so scarce and dear in many places within the past twenty years, attention has been directed to its substitute—American coal—which is now becoming a trade of vast importance. It is a singular fact, that the coal trade of our country commenced with 365 tunsin the year 1820, which were sent to Philadelphia by the Lehigh Coal and Navigation Company. This small amount completely filled the market, and was only disposed of with some difficulty during that year. In 1827, it—the coal trade—increased to 48,047 tuns; in 1837 to 881,026 tuns, in 1847 to 3,000,000, and 1852 to 4,383,730 tuns; this year, it is calculated that it will exceed 5,000,000 tuns. These statistics relate only to the anthracite coal trade of Pennsylvania, for we have not been furnished with any data of our bituminons coal trade. The amount of bituminous coal, however, mined and consumed in our country annually, must now be very great; we do not know that it equals the anthracite, but it certainly must come close up to it. It is now used on the steamboats on the Ohio and the Mississippi, and in all the cities and villages on the banks of these rivers. We also perceive that the ferry steamboats which ply on the rivers bounding our city, have been using the Cumberland coal for a month past, and we are told that a number of foundries use nothing else. We may safely set down the amount of all kinds of coal consumed in our country at 10,000,000 per annum. This is certainly a great amount, but when we consider that Great Britain produces 31,500,000 tuns per annum, we have some efforts to make yet before we reach that figure. But it will not require many years to accomplish this, for if our anthracite coal has increased in thirty-four years from 365 tuns to half a million, what increase may we not expect both in it and the bituminous coal produce during the next twenty years. As the anthracite region of Pennsylvania embraces an area of but 437 square miles, only a 304th part of our bituminous coal area, we can form some conception of what the coal trade will yet attain to, in the future history of our country.

Steam Harmonicon.

"We suggest to the ingenious manufacturer of steam engines the construction of a magnificent instrument of music, composed of steam whistles, to be played with keys, the same as an organ. What, for instance, could be more 'grand and pleasant' than the music of the locomotive three or four miles off, coming on steaming you 'Hail Columbia,' 'We come with songs to greet you,' 'Come rest in this bosom, my own stricken dear,' &c., &c. What ingenious mechanic will be the first to put this good hint into practice? When patented, we speak for half the proceeds as a compensation for this suggestion.

SCIENTIFIC AMERICAN, please notice."—[Lafayette American, (Indiana.)

If our brother chip of the *Lafayette American* gets ahead of the SCIENTIFIC AMERICAN in the line of new inventions he must get up three years earlier than he has in this case. If he just turns over the leaves of volume 6, SCIENTIFIC AMERICAN, until he comes to page 173, he will find that a citizen of his own State—Wm. Hoyt, of Dupont, has described his grand steam harmonicon. And it is not a little remarkable that Mr. Hoyt concludes his epistle in nearly the same language as the above. It is as follows:—"It is my candid opinion that the Western boys will yet hear 'Old Dan Tucker,' 'Auld Lang Syne,' &c., played on the Western waters by steam, at a distance of ten miles."

Alarm Whistle at Sea.

As a great deal has been said recently respecting the use of a steam whistle at sea, to be used by steamers during fogs; also that had the unfortunate *Arctic* used a whistle, there would have been no collision; we would state that an alarm whistle to be used for such purposes was described on page 388, Vol. 4, SCIENTIFIC AMERICAN, (1849.) It will be remembered by many that the steamship *Europa*, in that year, while running into Liverpool during a fog, ran down an American ship. Well, after that event, a whistle apparatus for ships was constructed and exhibited at Lloyd's Rooms, Royal Exchange, Liverpool, and was highly approved of by many nautical men. The article in our columns, to which we refer, stated that "it was the prevailing opinion of those who saw it that all vessels proceeding to sea should be furnished with one, not only *to prevent collisions*, but to be used when off a lee shore and in distress." Had the person who commanded the *Arctic* been a constant reader of the SCIENTIFIC AMERICAN, and had the above been treasured up in his memory, the sad accident which has filled so many homes and hearts with grief, might have been prevented.

The Art of Dyeing and Coloring.

Two weeks from the present date we shal commence a series of articles on the above subject, which will be thoroughly practical and useful for both operatives, and those who, like our farmers, do a considerable portion of their own dyeing. The instructions will be plain, and a great number of recipes will be given for every color on silk, cotton, and woolen goods, all of which can be relied upon.

$570 IN PRIZES.

The Publishers of the SCIENTIFIC AMERICAN offer the following Cash Prizes for the fourteen largest lists of subscribers sent in by the 1st of January, 1855.

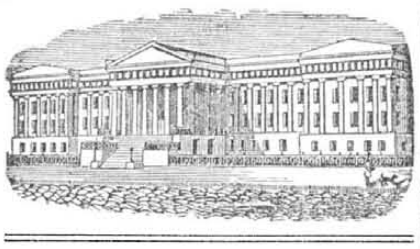
$100 will be given for the largest list,	
$75 for the 2nd,	**$35 for the 8th,**
$65 for the 3rd,	**$30 for the 9th,**
$55 for the 4th,	**$25 for the 10th,**
$50 for the 5th,	**$20 for the 11th,**
$45 for the 6th,	**$15 for the 12th,**
$40 for the 7th,	**$10 for the 13th,**
and $5 for the 14th	

The cash will be paid to the order of each successful competitor; and the name, residence, and number of subscribers sent by each will be published in the SCIENTIFIC AMERICAN, in the first number that issues after the 1st of January, so as to avoid mistakes.

Subscriptions can be sent at any time and from any post town. A register will be kept of the number as received, duly credited to the person sending them.

☞ See new Prospectus on the last page.

© 1854 SCIENTIFIC AMERICAN, INC.



[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING OCTOBER 31, 1854.

STEAM ENGINES—Nathan Atherton, of Philadelphia, Pa.: I do not claim a driving cylinder having screw-like grooves in combination with a piston rod, for the purpose of converting reciprocating into continuous rotary motion.

But I claim the connection of such a cylinder with inclined projections, constructed and arranged substantially as described, for operating the valve gear by motion taken directly from the cylinder, whereby the proper lead may be given to the steam, whether the cylinder be turning to the right or left, and the engine is rendered more convenient, compact, and durable than any heretofore known, in which the axis of the driving shaft is parallel to that of the piston.

KEY FOR TUNING PIANOFORTES—Abraham Bassford, of New York City: I claim combining the socket spindle with the handle spindle, by the interposition of cog gearing, or the equivalent thereof, to increase the leverage of the handle spindle relatively to the socket spindle, and have the axis of the two in or nearly in the same line, substantially as and for the purpose specified.

And I also claim, in combination with the two spindles combined, together with interposed gearing, substantially as specified, the employment of an arm or lever rest projecting from the plate of the interposed gearing to form a rest, substantially as and for the purpose specified.

PRESS FOR PRINTING IN COLORS—A. M. and G. H. Babcock, of Westerly, R. I.: We claim, first, the arrangement and combination of the polygonal platen and beds, substantially in the manner and for the purposes set forth.

We also claim the construction and arrangement of the inking rollers, consisting of the vibrating arms and springs for holding out the rollers in place, as described.

We also claim the combination of arms g, h, i, 1, 2, 3, &c., 12, or their equivalents, and connecting rods, i, c4, or their equivalents, for giving a series of impressions, forming progressive levers, in the manner specified.

We also claim the apparatus for turning the prism consisting of the vibrating arm, s4, disk, s1, springs, and pins, f1, or their mechanical equivalants, with the apparatus for engaging and disengaging the same, as set forth.

We also claim the arrangement and combination of the friskets with the platens, as specified, and the springs, y1, attachedthereto for giving a firm hold while drawing the sheet from the type.

KNIFE DIE FOR CUTTING LEATHER STRAPS FOR WHIPS.—Chas. Baeder, of New York City: I claim the use of the spiral knife die, to cut gradually tapering strips of leather, for the manufacture of raw hide and braided whips, substantially as set forth.

GRAIN WINNOWERS—Joseph Barker, of Honesdale, Pa.: I claim the combination of the conical hopper, C, circular screens, D G, with inclined sides, or of conical form and fan, F', the above parts being constructed and arranged substantially as shown and for the purpose set forth.

[A notice of this invention is published in No. 1, Vol. 10, SCIENTIFIC AMERICAN.]

BURGLAR'S ALARM—Ephraim Brown, of Lowell, Mass.: I claim making the knob of the drawer movable, and so combining it with an alarm apparatus as to cause an alarm to be sounded whenever an attempt to open the drawer by pulling on the knob is attempted.

I also claim the combination of the latch or spring bolt, and the secondary bolt and key or lever with the movable knob and the drawer, the same being to operate together, as specified.

I also claim the combining of the alarm pawl, m, with the knob rod by means of a movable hanging lever, n, to be operated or moved by a stud or its equivalent fixed to the knob rod.

I also claim the decoy key and its connections with the hanging lever, so as to operate as specified, also the connecting the said hanging lever to the secondary lever, so that a forward pull on the secondary lever shall move the hanging lever so as to effect the sounding of the alarm.

I also claim the combination of the counter or numbered wheel and its operative mechanism with the knob rod, the same being to exhibit the number of the attempts at opening the drawer, meaning also to claim the so combining the operative mechanism of the counter wheel with the hanging lever that a movement of the latter will effect a movement of the said wheel.

APPARATUS FOR TEMPERING AND FLATTENING SAWS—Wm. Clemson, of Boston, Mass.: I claim making those ends of the plates which the saw enters, with their faces of bevel-ed or other receding form, substantially as shown at c f, whereby they are enabled to impart heat to the saws by radiation before as they enter, and thus cause every part of the saw to be heated to a proper degree before being submitted to the pressure of the upper plate, substantially as set forth.

[See description of this improvement in No. 52, Vol. 9, SCIENTIFIC AMERICAN.]

SHINGLE MACHINE—Harry H. Evarts, (assignor to H. H. Evarts & A. J. Brown,) of Chicago, Ill.: I claim placing the blocks to be sawed into shingles in a rotating carriage, which is combined with inclined tables, p p, or a single table, and with saws, o o, or a single saw, in such a manner that the blocks will be carried continuously forward and be automatically operated upon, to convert them into shingles, substantially as set forth.

I also claim the arrangement of the weighted levers, H H, the fastening teeth, i i, and the inclined planes, l l, with each other and with the inclined tables, p p, and the outer series of teeth in the ledger, r, substantially as set forth.

I also claim presenting the sides of the fibers of the wood to the action of the saws in the sawing of shingles or equivalent articles, for the purpose of giving them a smoother surfaces than can be produced by the usual mode of sawing, substantially as set forth.

BURGLAR'S ALARM—Junius Foster, of Green Point, N.Y.: I claim the spring barrel, d, with the zig-zag groove around its circumference, in combination with the lever, h, bell, l, and stop, g, or its equivalent, for the purposes and as specified.

MACHINES FOR FILLING MATCH FRAMES—Wm. Gates, Jr. of Frankfort, N. Y.: I do not claim any of the parts relating to the operating of the match sticks, viz., forcing them from the box or hopper, F, for that has been previously invented.

But I claim the feeding bar, N, with its projections, r r, pressure rods, o o, and gauge block, v, with the springs, w w, or their equivalents, combined and arranged substantially as shown, for the purpose of feeding the slats or strips, c1, properly to the match frame, J, and adjusting them therein, and also causing the ends of the match sticks to be on a level to insure an equal immersion in the necessary compound with which they are covered.

[This is a very excellent machine.]

TOOTH CLOTHING FOR PICKER CYLINDERS—Robt. Henegage, of Lowell, Mass.: I am aware that teeth for card clothing of cylinders have been made of short pieces of wire bent and inserted in leather. I am aware also that it has of late been customary to make teeth of a short piece of metallic plate having its two ends bent up at right angles to the rest of the plate, and each reduced to a triangular form or tooth, such combined teeth being inserted in a band or sheet of leather or a flexible material wound on and fixed to the curved surface of a cylinder. I therefore do not claim either of such modes of making teeth or the clothing of card or picker cylinders.

But I claim the described improved manufacture of a metallic clothing of a pick cylinder, the same being made of a thin plate of metal with the teeth cut or stamped out of it, and bent from and directly above, and so as to stand at angles with the spaces from which they are cut, as specified.

I do not claim securing disconnected teeth in a cylinder, by providing said teeth with shanks to be driven into the cylinder forming said shanks with shoulders at the back of the teeth, and covering or overlapping the same by notched strips or plates of metal screwed to the cylinder and made to receive the teeth in their respective notches, when such shoulders are even with the external surface of the cylinder; my invention having no reference to teeth disconnected and driven into a cylinder or surface, but only to such as are formed and made to extend from a plate or strip of metal, as described.

And in such so made, I claim so arranging the base plates of the teeth on the periphery of a cylinder or the surface to which they are to be fastened, that one of said base plates shall overlap the other, and extend over and cover the spaces, b b, or out of which the teeth of the latter plate may have been formed, the same serving not only to give support to the teeth, but to prevent such spaces from becoming clogged with fibrous material or other matter, when the cylinder is in use, and also to increase the pitch of the front ends of the teeth beyond what they would have were the entire lower surface of each strip made to rest upon the surface of the cylinder.

FIRE ARMS—J. C. Howe, of Milwaukie, Wis.: I am aware that the breech has been before similarly held in its place and made capable of the double movement described by means of a slot, e, and stop, d, also that a sliding cam key at the back of the breech has been used to keep the breech steady against recoil, and serving to admit of the swiveling of the breech when required, but such devices have been differently constructed and less simply and perfectly arranged or combined with and operated on by the lever beneath: such, therefore, of themselves alone I do not claim.

But I claim the arrangement specified of the breech-operating lever, C, by its hinges or joints, a and b, with the breech, A, hung and operating as described, and movable guide or slide, D, at the back of the breech: the whole being constructed, combined, and operating together, substantially as set forth.

[This improved fire arm is secured by patent in Great Britain.]

MACHINERY FOR MAKING ROPE AND CORDAGE—John Harris, of Lansingburgh, John B. Scott, and Galen Richmond, of Troy, N. Y.: We claim, first, the arrangement of the gears, s and t, upon shaft h, in combination with the clutch, o, and shaft, I, so that by changing the position of the clutch we increase, retard, or arrest the motion of the friction rim, B, and reverse these motions instantly in the manner described.

Second, the spider, G, arranged and constructed substantially as described, in combination with the cam, K, and the spiral spring upon the shaft, to give it a revolving motion, to rub the strands for the purposes described.

SEATS FOR WAGONS—Chesley Jarnagin, of Clinton, Tenn.: I claim the making and attaching to the running gear of wagons of a safe, comfortable, and convenient seat for wagon drivers, as described.

MACHINERY FOR PICKING COTTON AND OTHER FIBROUS SUBSTANCES—Richard Kitson, of Lowell, Mass.: I do not claim the employment of a series of toothed bars attached to fans with spaces between them for the issue of currents of air.

But I claim, first, providing the cylinder or other foundation, to which the picking teeth are secured, with orifices or perforations distributedin all directions among the teeth for the purpose of blowing a number of streams of air among the teeth from the under side of and through the fiber, and thereby expelling outwardly during the picking operation all dust and dirt, and loosening the fibers, and finally blowing them from the teeth, substantially as set forth.

Second, I claim the method of securing the teeth, H, in the cylinder, by means of notched strips, I, and shoulders, h, on the teeth, substantially as described.

[The inventor of this excellent picker is engaged in their manufacture in Lowell, Mass.]

TAILORS' MEASURING INSTRUMENTS—John M. Krider, of Newtown, Stephensburgh, Va.: I claim the use of the protractor, T, at the point indicated by stud No. 2, for the purpose of determining the cardinal point, A, at the top of the back seam, in the manner described.

ATTACHMENT TO SYPHON—Saml. Lenher, of Philadelphia, Pa.: I claim so constructing a syphon that its long leg near the lower end thereof shall be surrounded with an elastic substance, as tow, cotton, india rubber, &c., forming a piston, c, upon the exterior of said hollow leg, in combination with a cylinder, B, as described, in which said pistor may slide for the purpose of creating a flow of liquid through the syphon by a quick withdrawal of the cylinder, without its coming in contact with the piston, substantially in the manner described.

TAILORS' MEASURE—Warren and Chas. F. Lillibridge, of Zanesville, Ohio: We claim the construction of flexible measures, substantially as set forth, so as to retain and show the form as well as the dimensions of the surface measured.

RAILROAD CAR AXLES—Jas. E. McConnell, of Wolverton, England: I claim the constructing of hollow axles of bars of wrought iron running lengthwise, the edges lapping into each other by joints, substantially such as are shown by figures 8 and 10, and which are welded and worked into form, as set forth.

CARTRIDGES FOR BREECH-LOADING FIRE ARMS—Daniel Moore, of Williamsburgh, N. Y.: I claim the cone, l, of paper, or other suitable substance attached to and entering the rear end of the breech-loading cartridge, to concentrate and pass the flash from a detonating cap, substantially as specified.

POWDER FLASK FOR BREECH-LOADING GUNS.—Daniel Moore, of Williamsburgh, N. Y.: I claim the method described and shown, of loading fire-arms from the breech by means of the pipe, c, so constructed and attached to the powder flask that the same forms a ramrod to force the ball into the barrel the required distance, and at the same time measure the powder for filling the chamber behind the ball, substantially as specified.

MECHANISM FOR SAWING OFF PILES UNDER WATER—Vincent Palen, of Portsmouth, Va.: I am aware that a bearing has been used at each end of the saw shaft, and I do not therefore claim this when not combined with the guides.

But I claim the combination of the devices for guiding and holding the saw up to the kerf, so as to prevent it from cramping and buckling in its kerf, the same consisting in the arrangement of the guides and saw shaft on the adjustable frame, in the manner and for the purpose set forth.

PEN AND PENCIL CASE—John Richardson, of New York City: I claim the construction and arrangement of a pen and pencil case, substantially as described, so that by the acts of extending and contracting the case, either the pen or pencil can be protruded and drawn in, as set forth.

MANUFACTURE OF BRICKS—L. E. Ransom, of Havana, Ohio: I wish it understood that I make no claim to any portion of the processes of manufacturing bricks set forth in the French patents or Capgras and Chamon, June 21, 1843, and Chas. H. Maigret, May 22, 1840.

But I claim the manufacture of bricks, substantially as described, that is to say, by first spreading the tempered mortar or clay at once upon the ground, where the bricks will be left to dry, and in beds of certain desired length, width, and thickness, and then while the mortar is in a soft state, or before it shall crack by too much drying, producing therein lines of weakening or separation, defining the dimensions of the bricks, without regard to their smoothness or final finish, and after the bricks, in drying, shall have separated from each other along the lines thus formed, turning them on edges, and squaring and polishing their edges, and defining the thickness of the same by rubbing over them the metallic tool, P, or otherwise substantially as set forth, the desired thickness of the bed being produced by means of guide bars or molds, and scraper or lute, substantially as specified, whereby I am enabled to dispense with off-bearers and otherwise to simplify the manufacture of bricks.

MANUFACTURING MAST HOOPS—E. W. Scott, of Lowell, Mass.: I do not claim revolving cutter heads for dressing lumber, as they have been known and used.

Neither do I claim stationary feed rolls as such, for they have also been known for planing board and other straight timber.

I claim the feed rolls, L and K, the feed rolls, I and J, and the cutters and cutter heads, C and D, when they are so constructed, arranged, and operated as to round or finish and shape the mast hoops, while passing the said cutters and rolls, which shape, round, or finish them, parallel to the grain, the hoops being at liberty to take their natural course, excepting where they are held by the feed and friction rolls and where the cutter heads and cutters are operating to dress them, essentially and for the purposes set forth.

SOLDERING FURNACE—Wm. J. Stevenson of New York City: I claim providing a soldering furnace with an air tube, and a recess, a a, or their equivalents, so that the entire circumference of each of the joints of the can shall be soldered all at once, and during the performance of the same no other parts of the can besides the lap, and that portion of the bottom or top upon which the ring of solder lies exposed to a melting heat, substantially as and for the purpose specified.

[A very good improvement in soldering furnaces.]

ODOMETERS—S. R. Thorp, of Batavia, N. Y.: I claim the peculiar combination of the spring, a b, a1 b1, with the band, d d, d1 d1, and the ratchet wheel No. 1 1'; all else I disclaim.

ODOMETERS—Julius Thompson, of Middleboro', Mass.: I claim communicating motion from the wheel of the vehicle to the working parts of the odometer by means of a cylindrical weight or wheel, D, placed within the case of the implement and detached therefrom, so that said weight or wheel will, by its own gravity, remain at the lower part of the case, and in one position, and by the arrangement shown, viz., the fork E, and eccentric, F, or other suitable device, communicate the necessary motion to the working parts of the implement as the case, A, rotates.

[This is an ingenious contrivance for the purpose.]

GRATE BARS—Samuel Vansyckel, of Little York, N. J.: I claim the casting or forming of the pin, dowel, or catch in one bar, or set with a corresponding hole or its equivalent in the next bar or set, so that when put together they shall be held from warping, twisting, or dropping from the end plates or walls, substantially as described.

ARRANGEMENT IN SPARK ARRESTERS FOR HEATING FEED WATER—R. A. Wilder, of Schuylkill Haven, Pa.: I claim the arrangement of the water space, f f f f, the flue spaces m and c, and the perforated cone, e, all concentric with each other in the manner and for the purposes set forth.

WATER METER—S. R. Wilmot, of New Haven, Conn.: I claim, 1st, extending the sides of the piston upwards in the form of a tube, E, to enter an open bottomed but close topped chamber, b, in which a quantity of air, is so confined as described, as to press equally on the water above and below the piston, and thus prevent it overflowing the top of the tube on either side, and hence to form an effectual air seal or packing, and allow the piston to be fitted to the cylinder, so loosely as to produce no friction.

2nd. Inclosing all the mechanism by which the valves are actuated within the cylinder itself, or in a chamber in free communication with the same as shown, whereby the necessity for stuffing boxes or other packing, for the valves, rods, or other parts connected with the valves, and the consequent expense of construction and friction of such packing, obviated as set forth.

[In Vol. 8, No. 52, our readers will find a notice of this invention.]

MACHINERY FOR CUTTING RAGS FOR MAKING PAPER—Alonzo S. Woodward, of Lowell, and Benjamin F. Bartlett, of Pepperell, Mass.: We do not claim a spiral cutting cylinder with the central part of it solid, as in the patent granted (for cutting straw) to A. P. Macomber, in 1850, as such will not work successfully to cut paper rags and other paper stock.

Neither do we claim a combination of the said spiral cutting cylinder with the stationary cutting knife, as in the said Macomber's patent.

Nor do we wish to claim any other thing, device, or part, as claimed or covered by grant of Letters Patent to said Macomber.

But we claim, first, the cylindrics made, and constructed, and used (as described in this specification and the drawings which form part of it) for the purpose of cutting paper rags, and other paper stock, substantially as set forth.

Second, we claim our before described cylindrics in combination with the cutting knife, F', when arranged and operated, essentially and for the purposes as set forth.

Third, we claim the combination of the two sets of feed rolls, with the cylindrics and knife, one set of them, the feed rolls, running at a greater speed than the other set, for the purpose of evenning the stock before it reaches the cylindrics and cutting knife, F, as set forth.

SURFACE CONDENSERS—Wm. Sewell, of Brooklyn, N. Y. Patented in England, Jan. 13, 1854: I claim, first, the elastic supplementary tube sheet constructed and applied substantially in the manner and for the purpose herein described.

Second, I claim the method substantially as herein described of preventing the endwise sliding or creeping of the tubes.

Third, I claim so constructing the guard that it performs in addition to its own duty the further office of holding down the edges of the elastic tube sheet preventing the entrance of water behind the same, substantially in the manner specified.

And lastly, I claim the injection or showering apertures in combination with a surface condenser, wherein the steam space is outside of the tubes, and which is also provided with proper entrances and dischargers for circulating water through the tubes whereby a surface condenser may be converted at will with a jet condenser for the purposes and in the manner substantially as described.

ADDITIONAL IMPROVEMENTS.

WHIFFLETREE HOOK—Martin Newman, 2nd, and N. C. Whitcomb, of Lanesborough, Penn., and G. C. Cole, of Hartford, Conn. Additional to patent dated Feb. 21, 1854: We claim as additional improvements in our whiffletree hooks the construction of a trace fastened on the ends of a whiffletree consisting of a rolling latch, D, turning on a pin, a, spring, E, in combination with a hook, B, and catch or detent, C, thereon, operating in the manner and for the purpose set forth.

SAFETY WASHER FOR SECURING WHEELS TO AXLES—Wm. Thornley, of Philadelphia, Pa. Additional to patent dated Sept. 19, 1854:—I claim a washer with a projecting flange and two stops as described, for the purpose specified.

DESIGNS.

DESIGN FOR BRACKETS—Isaac De Zouche, of Troy, N. Y.

DESIGN FOR FRANKLIN FIREPLACES—Nathaniel S. Prince, of Boston, Mass., (assignor to Franklin, Muzzy, & Co., of Bangor, Me., and Allen Lambard, of Augusta, Me.)

RE-ISSUE.

RAKES TO GRAIN HARVESTERS—Jearum Atkins, of Chicago, Ill. Original patent dated Dec. 21, 1852: I claim the means described of transmitting motion from the driving wheel to the raking apparatus substantially as set forth.

I also claim, secondly, the collecting, grasping, and depositing of the cut product by means of a rake and palm substantially such as described herein.

Eight of our clients will find their names in the above list. Inventors should not omit to send us sketches and descriptions for examination. Circulars of information forwarded free of expense.

Patents in Canada.

A bill amending the patent laws of Canada was defeated in the Legislative Assembly on the 23rd ult. The object of it was to encourage the introduction of inventions and discoveries of foreign countries into the Province by allowing foreigners to obtain patents in Canada in the same manner as patents have been and now are obtained there, by inventors who are subjects of Her Majesty and residents of the province, the duration of such patents to be limited to seven years. It was introduced by Mr. Sanborn, and defeated by a motion of M. Cartier, to postpone its reading for six months. Sir Allan McNab, and Attorney-General McDonald, objected to the bill on the grounds, that the laws of the United States charged $500 for patent fees to Canadians. We think the fee is far too high, but those members who spoke against the bill did not seem to have sense enough to consider that a good patent in the United States was far more valuable to a Canadian, than a patent in Canada, with its sparse population, to an American. It appears to us, that, as a matter of political economy for the benefit of Canada, those who opposed the Bill exhibited a great want of sagacity and good statesmanship.

We hope that our patent law relating to the fees charged upon foreigners, will be amended at the next session of Congress.—The charging of $500 as a patent fee to the subjects of Great Britain, and retaining $200 when a patent is refused, to an English or Canadian applicant, is a disgrace to us as free people, professing to be guided by the laws of honor and uprightness.

We also hope that those members of the Canadian Parliament who have defeated the above Bill (for the present,) will act very differently when it comes up next year. There should be complete reciprocity between the two countries in the matter of patent fees and patent rights.

The Wood Gas Controversy.

A rather sharp but distant firing is being carried on by some persons interested in wood gas patents; and we perceive that the smoke of their cannon has somewhat obscured their vision. Dr. C. G. Page, as the attorney for W. P. McConnell, having presented his claims through our columns, L. R. Breisach, of this city, has presented those of Pettenkofer & Ruland, of Bavaria—he being their assignee—through the columns of the *Daily Times* of the 3rd inst. He states that the first patent for the Bavarian invention was issued on Feb. 24, 1851, an authenticated copy of which has been filed in our Patent Office; also that the claims of his assignors were filed in the Office, to protect their rights, more than a year ago. As no patent can be obtained for making or using wood gas, the disputed point relates to the apparatus, which embraces the reheating of the gas—passing it over a red-hot surface in its way to the cooler—after it is generated; this is clearly stated in Dr. Page's letter, on page 50. Now, as McConnell claims to have invented the apparatus for re-heating wood gas, as far back as 1849—two years previous to the granting of the Bavarian patent,—and as he obtained a patent for the same, on the 26th day of September last, although contested by Pettenkofer & Ruland, we cannot well conceive who L. R. Breisach wants to frighten, by declaring through the columns of the *Times*, that he will prosecute the violators of the Bavarian invention. He gives this notice to all who take an interest in the introduction of this invention, but in doing so, he forgot to present any fact upon which the public can rely, to show what patent rights he possesses. When he again writes to inform the public that he has certain patent rights, and will prosecute those who infringe them, we hope he will be so good as to state what these rights are, so that the public may know what he means. It is our opinion, however, that he need not be under any apprehensions from the public going into the wood gas manufacture while there is such an abundant supply of cannel coal in our country.

More Life Boats.

The great loss of life by the unfortunate *Arctic*, having made a deep and sad impression upon the minds of the principal agent and the principal stockholders of the Company, they having lost so many near and dear friends, it appears, that they have become thoroughly convinced that there was not a sufficient supply of life boats on board, for Mr. Collins has just given orders to have five new ones (Francis' Metallic) built for each of his steamers. The letter of Mr. Collins ordering these new boats, states, that with those which his steamships now have, and the additional ones, they hope to provide for four hundred persons, with water and provisions for several days, in ordinary weather, at sea. Every steamer and sailing vessel should be compelled to carry life boats of sufficient capacity to carry all the crew and passengers, with provisions and water for a week at least. We hope that a law will be made by the next Congress embracing an inspection for all vessels before they proceed to sea, on every voyage, in order to see that each is provided with a sufficient supply of life boats.

The Telegraph in Australia.

The electro-magnetic telegraph is making decided progress in Australia. A line from Melbourne to Geelong was to be completed on the 10th of August last.

© 1854 SCIENTIFIC AMERICAN, INC.

TO CORRESPONDENTS.

H. H., of La.—The principle of propelling vessels by forcing out water at the stern by means of pumps, is very old, as it was the plan first tried by Rumsey, shortly after the Revolution. Ruthven, of Edinburgh, has employed an improved method of propelling by water, but we do not think it will take the place of the paddle or screw.

S. S., of Mass.—A self-supporting sun-shade secured to the shoulder of the wearer, was shown to us by a Western lady some months ago. We have heard nothing of it since.

S. S. U., of Ct.—Models can be made of any durable material, iron, brass, tin, wood, etc.

E. M., of Va.—The papers relating to the washing machine case were sent to Washington Oct. 13th.

E. P. B., of Me.—As a general remark we can truly say that it is quite difficult to procure a patent on a water wheel, so much having been done in them. We do not discover any novelty in yours upon which a claim can be sustained.

T. O., of Pa.—Street sweeping machines and knife cleaners have been patented. There are a number of inventions for these purposes.

A. J., Jr., of Mass.—We cannot prepare your specifications and drawings without a model. Some inventors do not understand that models are required by law. We send a circular of instructions free to any one who desires to know how to proceed to make application for a patent.

C. H., of Va.—We have examined the sketch and description of your improvement in hurdle fences. We would refer you for the same thing to volume 7, SCIENTIFIC AMERICAN, page 132. You can procure this volume bound for $2,75.

A. B. L., of N. Y.—We would not advise you to apply for a patent on your static pressure locomotive. It is no doubt as good (as you say) as other perpetual motions, but then it is not a perpetual motion.

W. R. H., of Wis.—We like your communication; send on the other and let both go together; this is the best way.

F. F. H., of N. Y.—The only way to find out whether or not the banks will adopt the paper you describe, is to try them. The bankers of Boston offered a reward for such paper, but the time is past for you to take advantage of the same.

C. L., of Mass.—We do not understand your question respecting the running of a belt correctly on two cones of pulleys of different sizes.

W. B., of Baltimore—The matter which you wish to correct is of no importance whatever, because no error was committed in science or fact, relating to the three modes of using steam.

C. C., of Ohio—Your process of separating the fatty and oily from the membraneous portions of animal and vegetable substances, is not new. Mollett's English patent 1844, describes the same thing.

C. R. E., of Mass.—Your communication cannot be published. It is not suitable for our columns.

G. P., of Montreal—The model must not exceed twelve inches in length, breadth, or hight. Gas has been made of grease of all kinds, asphalt, water, coal, resin, and a great many other things.

H. F. W., of N. Y.—Common green paint, with some white lead in it, is good for iron, but you should varnish the iron first then paint on the top of it. Don't use tar in the sulphuric acid for cleaning castings; use four parts of water to one of acid.

A. J., Jr., of Pa.—There is a very extensive market in England for such an invention as you speak of, and if yours can be made to operate well there will be no difficulty in finding a purchaser for it. Our Agents in London will attend to its sale.

A. P., of N. Y.—Your improvement in car trucks is quite different from anything we know of for the purpose. You had better send us a model of it for further examination.—Bear in mind that the model must not exceed one foot square in size.

A. B. & Co., of London—We shall transmit without delay the powers of attorney for the Norway, Sweden and Denmark patents. It takes some time to get them legalized by the executive.

C. J., of N. H.—Send us a sketch of your cloth folding machine, and we will examine it. A convolute die is not new.

G. S., of N. Y.—Your drill is a good one, and ought to find ready sale. It contains some novelty. You can expect only a limited claim.

G. J. L., of N. Y.—We are not acquainted with any work on medical galvanism.

The following amounts have been received from the parties to whom these initials apply, on account of razeeing their models at the Patent Office:—R. W., of O., $7; E. Y., of Pa., $3; N. B., of N. Y., $2,75; A. E., of N. Y., $1,50; H. W. P., of N. Y., $3; T. S. W., of N. J., $30.

Money received on account of Patent Office business for the week ending Saturday, Nov. 4:—

A. H. B., of N. Y., $60; J. W. Y., of Pa., $35; G. B. C., of N. Y., $25; J. B., of Ill., $55; W. H. B., of Ind., $20, B. & C., of Tex., $15; L. B., of N. Y., $50; G. H., of Tex.; $25; C. & R., of Mo., $30; B. & V., of Mass., $25; K. & H., of Del., $25; L. W., of Iowa, $30; W. H., of Mass., $25; S. P. K., of Ind., $30; J. C. H., of Wis., $100; V. P., of Ind., $30; S. E. P., of Miss., $59; G. P. F., of Mich., $25: J. W. H., of R. I., $5; G. L. S., of Mass., $30; P. & C., of N. Y., $55; T. H., of N. Y., $30; J. H. B., of N. Y., $55; E. G. O., of N. Y., $33.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Nov. 4:—

J. H. B., of N. Y.; L. C. C., of Ct.; J. W. H., of Ct.; G. B. C., of N. Y.; Mrs. G. P. F., of Ind.: C. & R., of Mo.; L. W., of Iowa; B. & V., of Mass.; K. & H., of Del.; W. W., of N. Y.; J. S., of N. Y., (2 cases;) W. H. B., of Ind.; B. & C., of Tex.

Important Items.

BACK NUMBERS AND VOLUMES—We have the following numbers and volumes of the SCIENTIFIC AMERICAN, which we can supply at the annexed prices:—Of Volume 5, forty numbers; price in sheets, $1; bound, $1,75. Of Volume 6, all; price in sheets, $2; bound, $2,75. Of Volume 7, all; price in sheets, $2; bound, $2,75. Of Volume 8, none complete, but about 30 numbers in sheets, which will be sold at 50 cents per set. Of Volume 9, complete in sheets, $2; bound, $2,75. Subscribers who have missed numbers on the Volume just closed, can be supplied with copies to fill the vacancy, excepting the following numbers: 1, 6, 9, 11, 22, and 23.

PATENT LAWS, AND GUIDE TO INVENTORS—We publish and have for sale, the Patent Laws of the United States—the pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office Price 12½ cents per copy.

American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—MESSRS. MUNN & CO., Publishers and Proprietors of the SCIENTIFIC AMERICAN, continue to prepare specifications and drawings, and attend to procuring patents for new inventions in the United States, Great Britain, France, Belgium, Holland, Austria, Spain, etc., etc. We have constantly employed under our personal supervision a competent board of Scientific Examiners, which enables us to despatch with great facility a very large amount of business. Inventors are reminded that all matter intrusted to our care are strictly confidential, and hence it is unnecessary for them to incur the expense of attending in person. They should first send us a sketch and description of the invention, and we will carefully examine it, state our opinion, and the expense of making an application, if deemed new and worthy of it. Models and fees can be sent with safety from any part of the country by express. In this respect New York is more accessible than any other city in our country. Circulars of information will be sent free of postage to any one wishing to learn the preliminary steps toward making an application.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

It is very important that trustworthy and competent agents should be employed in securing patents, as great care is necessary in the preparation of the papers, as well as integrity in taking proper care of the case until the inventor is duly invested with his legal rights. Parties intrusting their business in our hands can rely upon prompt and faithful attention. Most of the patents obtained by Americans in foreign countries are secured through us; while it is well known that the largest proportion of patents applied for in the U. S., go through our agency.

The offices of Messrs. Munn & Co.'s American and Foreign Patent Agency are at 128 Fulton Street, New York; London, No. 16 Castle st.; Paris, No. 29 Boulevard St. Martin: Brussels, No. 6 Rue D'Or.

IMPORTANT TO MANUFACTURERS OF R. R. Cars, Doors, Sash, Blinds, and other wood work.—We are now fitting up largely for the manufacture of Wardwell's Patent Tenoning Machine, for which a patent was granted the 29th of August last. They will do the work of from 3 to 8 ordinary machines. They complete at one operation, even to chamfering tenons of any length, width, thickness, or style. They cut double tenons, which no other machine can do. They are substantially made, and by far more durable than any other in use. They have been in successful operation for the past 10 months. COLE, DAVIS, & CO., Lake Village N. H. For rights, address C. P. S. WARDWELL, at Lake Village. 9 3

TO IRON FOUNDERS—Wanted a situation as Manager or Foreman, or take the work by the piece, in a large shop. The advertiser, who has been foreman for the last two years, in a large shop in this city, and five years in England, and understands the business in all its branches on the most improved plans and good reference given. Would have no objection to go South or West. Address H. M., Jeweler Store, No. 533 Eighth Avenue, New York. 1*

TROFATTER'S IMPROVED WELT Machine—The best, cheapest, and most durable Machine in use. It cuts to the width, and splits from corner to corner at one passage through. It will make a set of 60 pairs from the whole stock in ten minutes, without any waste of stock. Size of Machine, 11 by 16 inches. Price $15. Right for any State except Massachusetts. $300.
S. J. & C. H. TROFATTER.
1* 4 Beaver Street, Salem, Mass.

WANTED—To take charge of the sale or introduction of certain valuable Patented Mechanical Inventions, a person who can furnish satisfactory evidence of character and ability for such business. Address, stating views as to remuneration, &c., L. P. C., Post Office, New York. 9 3*

STEAM ENGINE—Wanted, a good second hand Horizontal Steam Engine, with Boiler. About 25 or 30 horse power. Address, Box 586 P. O. 9 1*

CARRIAGE MAKERS—And Patent Dealers, who will address me, pre-paid, will receive information of my improved Carriage Top, patented June 20th, 1854, and will not regret their trouble. S. F. HUNTINGTON, Syracuse, N. Y. 9 2*

MATHEMATICAL INSTRUMENTS—Separate and in cases. McALLISTER & BRO., 48 Chestnut street, Philadelphia. 9 4

PHILOSOPHICAL APPARATUS—Of every description. McALLISTER & BROTHER, 48 Chestnut street, Philadelphia. 9 4

SPECTACLES—Spy Glasses, Microscopes, Platina Points, &c.. &c.. &c., McALLISTER & BROTHER, 48 Chestnut street, Philadelphia. 9 4

STATIONARY STEAM ENGINES—The subscriber is now prepared to furnish, with or without pumps, boilers, &c.. Horizontal Engines on iron bed frames, good strong, substantial, plain finished engines that will do good service, say from 4 horse, $215, to 30 horse, $1,037; they have Judson's patent valves, and will be warranted to work well. S. C. HILLS,
9 e3wtf 12 Platt st., New York.

THE STAIR BUILDERS' GUIDE—By Cupper, now ready; price $6. By remitting, the book will be sent by mail or express to any part of Canada or the United States. W. GOWANS, 178 Fulton street. 9 4*

THE EXCLUSIVE RIGHT TO MAKE AND sell Gale's Eagle Feed Cutters, for cutting all kinds of fodder, particularly cornstalks, by hand power, is offered for sale for the Western States, and fifteen counties in Western New York. Nourse & Co., of Boston, Mass., manufacture and sell for the balance of the United States. Retail price in Boston for best size, $16. Parties wishing to buy rights can get the refusal of the territory wanted, long enough to send to Nourse & Co. to get a machine, and cut, if they choose, a hundred tuns of feed with it; by that time it is fair to presume they can form an intelligent opinion as to its value. The patent is a good one, and cannot be dodged by pirates.—Letters in reference to rights should be sent direct to WARREN GALE, No. 4 North Market st., Boston, Mass. 8 4

AMERICAN STONE DRESSING MACHINE—"Porter's Patent," illustrated in No. 8, present Volume. The subscribers are now prepared to sell rights to use the above machine, patented August 8th, 1854. One is now on exhibition at Nos. 35 and 37 Ganesvoort street, in the city of New York, and all persons interested in the business are invited to visit it, as the machine itself will give the best idea of its own capacity. Being very simple in its construction, and adapted to a great variety of purposes, requiring but little power, saving an immense amount of labor, and producing surfaces far more perfect than can be produced by hand, it is believed that no one carrying on the business of working stone, of whatever nature, can long afford to be without one.
CAPWELL & PORTER,
8 6 New York City.

MACHINIST'S TOOLS—Now finished, two Engine Lathes, 9½ feet bed, 18 inches swing; one do. with screw cutting apparatus; also, one 7½ feet bed, 18 inch swing; and two do. with screw, from new and improved patterns and of superior workmanship, by C. S. TOLMAN & CO., Fitchburg, Mass. 3 6eow*

VAIL'S CELEBRATED PORTABLE STEAM Engines and Saw Mills, Bogardus' Horsepowers, Smut Machines, Saw and Grist Mill Irons and Gearing, Saw Gummers, Ratchet Drills, &c. Orders for light and heavy forging and castings executed with dispatch.
81y* LOGAN VAIL & CO., 9 Gold st., N. Y.

TO MACHINISTS, RAILROAD COMPANIES, and others—SHRIVER & BROTHERS, Cumberland, Md., have now on hand, for sale, Engine Lathes, 8 feet bed, swing 19 inches; ditto, 10 feet bed, swing 24 inches; Hand Lathes, 8 feet bed, swing 18 inches; Planing Machines plane 6 feet long and 33 inches wide. We are also manufacturing a variety of other sizes and descriptions of machinists' tools, all of which are built in the best style, and warranted to give perfect satisfaction.—First premiums have been awarded us by the Maryland Institute, Baltimore; and the Ohio Mechanic's Institute, Cincinnati, O., at their Exhibitions this year. 8 4

DRAUGHT BOARDS—Patent, 23 by 29 inches.—Ready sales their best recommendation. Cheapest instruments in use. Complete for $10. Sent by Express. Direct (post paid) to CHAMBERLIN & Co., Pittsfield, Mass. 8 5t*

PRICES GREATLY REDUCED—JOHN PARSHLEY, New Haven, Conn., will have 12 of his No. 2 Iron Planers finished by the 1st of January, 1855, to plane 12 feet long, 36 inches wide and 30 inches high, with down and angle feed in the cross-head, they weigh about 8,000 lbs, and are in workmanship and design equal to any planers built in New England. Price 550 dollars cash. Boxing and Shipping extra. For cuts address as above. 8 tf

LIFE ILLUSTRATED—A new first-class Weekly Newspaper, devoted to News, Literature, Science and the Arts, to Entertainment, Improvement, and Progress. To embrace every human interest, and to supply aliment to every mental faculty, is its aim.—Bound to no theory or party, but seeking the highest interests of all; advocating whatever tends to promote the physical, intellectual and moral good of man, but exposing evils and their causes, it shall merit, and, we hope, command, a world-wide circulation and influence. It will point out all available means of profit and comfort, and especially expound the laws of Life and Right, including the normal exercise of all our powers, besides encouraging in all a spirit of hope, manliness, and self-reliance. A large folio sheet of excellent paper, with twenty-eight columns of new type, printed in a superior manner, at $2 a-year. Published by
7 4 FOWLERS & WELLS, 308 Broadway, N. Y.

100 HORSE POWER ENGINE, $2800; four 18 feet Screw Cutting Engine Lathes, $400 each; 2 four-horse, and 2 eight-horse power Engines, by J. W. HOOKER, Buffalo Machinery Depot, Terrace st., and 36 Lloyd st., Buffalo, N. Y. H. C. BROWN, Supt.
7 3

TO EXHIBITORS—All applications for space to exhibit in the French Palace of Industry, in 1855, should be addressed to the undersigned before the 15th of November next. S. H. WALES,
Commissioner for the State of New York.
Office Scientific American, New York City.

DICTIONNAIRE TECHNOLOGIQUE Francais-Anglais-Allemand, redige d'apres les meilleurs ouvrages speciaux des trois langues, donnant avec leurs diverses acceptions et applications, tous les termes techniques employes dans les arts industriels et dans la mecanique, la physique et la chimie manufacturieres; suivi d'un tableau comparatif des monnaies, poids et mesures, Francais, Anglais, et Allemands. Par MM. Tolhausen et Gardissal. New York, chez MUNN et CIE, 128 Fulton Street. Prix, $1,31

MECHANICS' ROOMS, WITH STEAM POWER, to Rent, in Cleveland, Ohio—The undersigned has just erected a large three story brick building, tin roofed, two hundred feet long, and one hundred feet wide, and to be furnished with two large steam engines expressly designed for the growing mechanical wants of this vicinity. The apartments will be divided and power rented, to suit the wants of tenants. The location is central, conspicuous, and convenient to canal, railroads and lake shipping. Few mechanics or manufacturers are aware of the vast number of articles which are used in immense quantities in the Western States, which have been hitherto wholly manufactured in the Eastern States and which may be made here to better advantage. The premises will be ready for occupation early this fall. For further information apply to J. L. HEWITT, Cleveland, Ohio. 5 5

ESTABLISHED IN 1796—Philosophical, Mathematical and Optical Instruments. Our priced and illustrated Catalogue furnished on application, and sent by mail free of charge. McALLISTER & BROTHER, Opticians, 48 Chesnut st., Philadelphia. 9tf

NEW HAVEN MANUFACTURING COMPANY Machinists' Tools. Iron planers and Engine Lathes of all sizes. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Chucks, &c., on hand and being built by the quantity, which enables us to sell low. For cuts giving full description and prices, address New Haven Manufacturing Co., New Haven, Conn. 1 tf

WOODWORTH'S PATENT Planing, Tonguing Grooving Machines—Double machines plane both sides, tongue, and groove at one and the same time, saving one half of the time when lumber is required to be planed on both sides. Large assortment constantly on hand. Warranted to give entire satisfaction to purchasers.
JOHN H. LESTER,
4 6* 57 Pearl st., Brooklyn, L. I.

YOU CAN GET THE NEW YORK WEEKLY SUN three months for 25 cts.; six months 50 cts.; one year, 75 cents, 16 months, $1. Or three copies one year, $2; eight copies $5; twenty-five copies $15; and by canvassing for subscribers you may get one of the five cash prizes $50, $20, $15, $10, and $5—for the largest lists sent in before 3rd Feb.—Specimen copies gratis.—Send letters and money (post-paid) to MOSES S. BEACH, Sun Office, New York. 6

TO CAPITALISTS AND MANUFACTURERS—The New York Cast Steel Works, corner Second Avenue and 47th street, are for sale or to let, affording a desirable opportunity for those desiring to engage in the business. Address or call on DANIEL ADEE, Agent, 107 Fulton st., N. Y.
Steam Engines for sale, cheap for cash, one of six-horse power, and one of two-horse power. Apply as above. 6 4*

COTTON AND WOOLEN MANUFACTURERS' Supplies of every description; also machinery of all kinds; wrought-iron Tackle Blocks of all sizes; Leather Belting superior oak tanned; Bolts, Nuts, and Washers of all sizes on the most reasonable terms.
6 13* SAML. B. LEACH, 51 Broad st.

GREAT AUCTION SALE OF MACHINISTS TOOLS—JOHN PARSHLEY will sell at Auction, on Wednesday the 22d day of November, 1854, at his shop, in New Haven Conn., 75 Engine Lathes of all sizes, 12 Bolt Cutting Machines, a number of Drill Presses and 12 Iron Planers, all of which tools are built in the best workman-like manner, and can be seen on or before the day of sale. Circulars, giving all required information, and cuts of tools, will be sent to all post paid applicants. 5 8

GLOVER'S DOUBLE-POINTED SPRING-CASE GRIP N—Patented August, 1854. (See engravings in the Scientific American, No. 4, Vol. 10.) Territory for sale by W. R. GLOVER, Glasgow, Ky. 5 6*

WARREN'S TURBINE WATER WHEEL—Manufactured at the Wareham Manufacturing Company's Works, Wareham, Mass. These Wheels are now in extensive use in New England, and are constructed in the best possible form for using water with the greatest economy. They are equally adapted to all manufacturing purposes, and under all heads, and not affected by back-water. For particulars, certificates, &c., address JACKSON WARREN, Wareham, Mass. 5 5*

WIRE ROPE OF IRON AND COPPER—For Mines, Inclined Planes, Hoisting and Steering purposes, Stays or Braces, &c., &c., much safer and far more durable than the best hemp or hyde ropes. Also for Sash Weights, Dumb Waiters, Lightning Conductors, &c. CHARLES W. COPELAND, No. 64 Broadway. 5 3m

KENTUCKY LOCOMOTIVE WORKS—Corner of Kentucky and Tenth streets, Louisville, Ky.—The proprietors of the Kentucky Locomotive Works would respectfully inform Railroad Companies and the public generally, that, having completed their establishment, they are now prepared to receive and execute orders with fidelity and dispatch. They will contract for Locomotives, Passenger, Baggage, Freight, Gravel, and Hand Cars, of every style and pattern, as well as all kinds of Stock and Machinery required for railroads.—Particular attention will be paid to Repairing, for which they have every facility. They are also prepared to contract on favorable terms for building all kinds of Machine Tools, such as Turning Engines, Laths, Planers, Drills, Slotting, Splining, and Shaping Machines of every variety of pattern. Having also a large Foundry connected with the establishment, orders for castings are solicited, and will be filled with promptness. Car Wheels of any pattern can be furnished on short notice. Double and single plate and Spoke Wheels of all sizes constantly on hand. Communications or orders must be addressed to OLMSTED, TENNEYS & PECK, Louisville, Ky. 40 6m*

OIL! OIL! OIL!—For railroads, steamers, and for machinery and burning—Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough, and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer.
T. S. PEASE, 61 Main st., Buffalo, N. Y.
N. B.—Reliable orders filled for any part of the United States and Europe. 6tf

BUFFALO MACHINERY DEPOT—Terrace St. and 36 Lloyd st., Buffalo; J. W. HOOKER, Proprietor, H. C. Brown, Superintendant, offers for sale Machinists' tools of all kinds: Engine Lathes, Planers, Drills, Chucks, Boring Mills; also machinery of all kinds on hand or furnished to order. 7tf

1854—MICHIGAN CENTRAL R.R. LINE D.W. WHITING, Freight Agent, and also General Forwarder, having been a practical machinist, is prepared with skill and implements to handle and ship by any line, all kinds of machinery and manufacturers' wares. Mark plainly, care D. W. WHITING, Buffalo, N. Y. 7tf

STEAM ENGINES AND BOILERS FOR SALE.—One new eight-horse engine. One second hand five-horse engine. Tubular boilers, second-hand, suitable for same. One second-hand two horse portable engine and boiler. THOS. PROSSER & SON, 28 Platt street, 4tf

STAVE AND BARREL MACHINERY—Hutchinson's Patent. This machinery which received the highest award at the Crystal Palace, is now in daily operation there. Staves, heading, &c., prepared by it are worth to the cooper 20 to 40 per cent. more than when finished in any other way. Special attention is invited to the improved Stave Jointer. Apply to C. B. HUTCHINSON & CO., Crystal Palace, or Auburn, N. Y. 1 tf

PATENT DRIERS—Zinc Driers, Graining Colors, Stove Polish, Gold Size, &c., &c., 114 John street, New York. QUARTERMAN & SON, Manufacturers.
1 6m

JOHN PARSHLEY, manufacturer of machinist's tools, No. 5 and 7 Howard street, New Haven, Ct., is now finishing a lot of iron planers to plane 8 5-12 feet long, 30 in. wide, and 26 in. high, having the down and angle feed in the cross head, the planers all of the best quality, and prices extremely low for the quality. Cuts with full particulars can be had by addressing as above, post-paid. 1 tf

A. B. ELY, Counsellor at Law, 52 Washington st., Boston, will give particular attention to Patent Cases. Refers to Messrs. Munn & Co., Scientific American. 16 1y*

HARRISON'S GRAIN MILLS—Latest Patent.—$1000 reward offered by the patentee for their equal. A supply constantly on hand. Liberal Commissions paid to agents. For further information address New Haven Manufacturing Co., New Haven, Conn., or to S. C. HILLS, our agent, 12 Platt Street, New York. 1 tf

ENGINEERING—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc.
CHARLES W. COPELAND,
1 tf Consulting Engineer, 64 Broadway.

THE MERIDEN MACHINE CO.—Successors to Oliver Snow & Co., West Meriden, Conn. Have on hand and make to order a great varlety of Lathes, Planers, and other machinists tools of superior quality and finish. Cuts of these tools may be had on application as above, with full particulars. They also manufacture Farnam's Patent Lift and Force Pumps of all sizes. For mines, factories, railroad stations, &c. Having a large and extensive variety of patterns, the accumulation of over 20 years business, and extensive facilities for making light or heavy castings, are prepared to contract for any kind of mill work, mining machinery, &c. New York Office and Sample Room, No. 15 Gold, cor. Platt st.
1 3m*

PHŒNIX IRON WORKS—GEO. S. LINCOLN & CO., Hartford, Conn. Manufacturers of Machinists Tools. Are constantly making and have now on hand an assortment of Screw Cutting Engine Lathes, viz.:—No. 1. bed 10 ft. long, swing 20 inch. No. 2. bed 14 ft. long, swing 30 inches. No. 3. bed 16 1-2 ft long, swing 40 inches, with improved bed, cast steel spindles, feed motion carried by a screw, toothed rack for moving tool rest by hand, improved gibb rest and tool stock, stationary and traveling back rest; also manufacturers of Lathes for turning Locomotive Driving Wheels, small Power Planers, Upright Drills, Power Punching Presses, &c. Designs of the tools with further descriptions, will be sent by addressing as above. 1 3m*

ENGINEERS, DRAUGHTSMEN, AND MECHANICS supplied with Drawing Instruments, separate and in cases, Parallel Rules, Scales, Dividers, Metallic Tape Measures. Linen do., Chains, Surveyors' Compasses, Levels and Transits, and a large assortment of Optical and Mathematical Instruments, wholesale and retail by JAS. W. QUEEN, of the late firm of McAllister & Co., 264 Chesnut st., Philadelphia. Illustrated catalogues gratis by mail. 3 3m*

NORTHVILLE MACHINE WORKS—Manufactory of Machinists Tools, consisting of Engine Lathes, Power Planers, Hand Lathes, Engine Lathe for turning chair stuff, all of the most improved patterns and quality of workmanship. Worcester, Northville, Mass., August 9, 1854. TAFT & GLEASON. 50 1y*

NORCROSS' ROTARY PLANING MACHINE—The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Woodworth Patent.
Rights to use N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS,
208 Broadway, New York.
The printed report of the case with the opinion of the Court can be had of Mr. Norcross, at Lowell, or 27 State street, Boston. 36 6m*

MACHINISTS TOOLS—SHRIVER & BROS., Cumberland, Md., (on B. and O. Railroad, midway between Baltimore and the Ohio River,) manufacturers of Lathes, Iron Planers, Drills and other machinists tools
50 6m*

© 1854 SCIENTIFIC AMERICAN, INC.

Science and Art.

Palm Oil Candles.

Until of late years, candles were solely manufactured from bees-wax, spermaceti, or tallow. The application of scientific chemical research, however, to this branch of art, coupled with the withdrawal of the vexatious excise supervision, which prevents improvements in every trade which comes under its influence, has so improved the materials used, as well as the manufacture itself, that all the best candles are now made from pure solid and crystallizable margaric and stearic acids. These are freed from the fluid oleic acid, and from glycerine, which exist in combination with them in ordinary tallow, as well as from other analogous substances—paraffine, (a carbo-hydrogenous substance resembling spermaceti, prepared from tar and peat,) the stearic and margaric acids of the cocoa-nut oil, besides the old substances, spermaceti and wax, both vegetable and animal. Only the coarsest description of candles are now made from the tallow of the ox or sheep; but as the illuminating power of these candles is small compared with the improved candles, while their rapidity of consumption is much greater, they are absolutely dearer as articles of consumption than the candles of improved manufacture. . . . The discovery by the celebrated French chemist, Chevreul, that fats were composed of three highly inflammable bodies, stearic and margaric acids (solids,) and oleic acid (a liquid,) combined with a comparatively uninflammable body, glycerine, has led to the creation of the great new manufacture of stearic and composite candles, the growth and importance of which will be understood when we state that, while in 1833 the new candles were unknown in England, and the quantity manufactured in France amounted to only twenty-five tuns annually, a single London house (that of E. Price & Co.,) manufactured last winter (1854) more than that quantity of stearic and composite candles daily, and employs in the business above 900 hands, and a capital of nearly three quarters of a million.—[Encyclopædia Britannica.

[We believe that there is no manufactory of palm oil candles in the United States, lard and tallow being the substances which our chandlers employ in making stearine candles. We do not know whether palm oil is cheaper or dearer than lard and tallow; if cheaper, candle manufacturers would do well to direct their attention to procuring a supply of it.

Tubular Bridges in Canada.

The people of Canada seem to be going ahead with extraordinary energy and enterprise in the construction of splendid iron bridges. The editor of the *Quebec Observer* thus describes some new bridges recently erected over some of the rivers, in the line of the Quebec and Richmond Railway :—

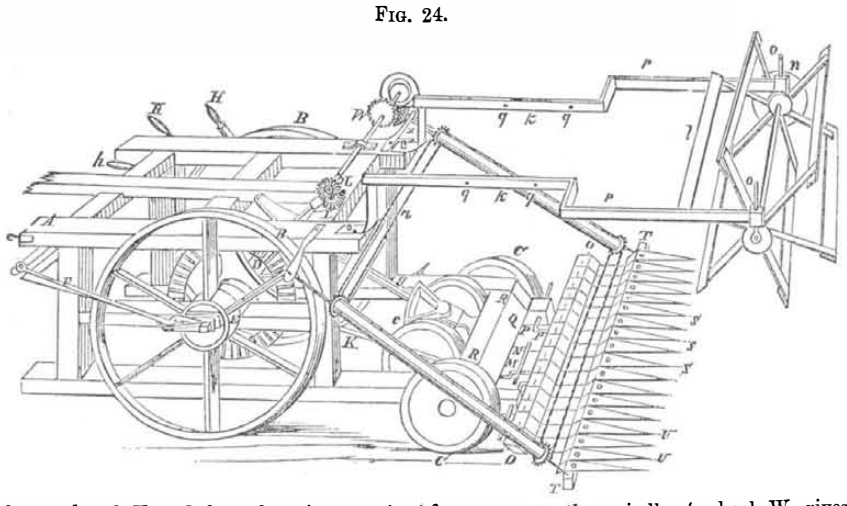
"The one over the Silk River is made of boiler plate, the tops, bottoms, and connecting plates being of double or treble thickness, and, in form of construction, like a wooden trestle bridge, the interstices being filled in with common boiler plate. The river, at first glance, seems to be spanned with an ordinary steamboat boiler, on which a road is placed. It is, however, inconceivably strong, resting as it does upon substantial stone piers. We came next on the bridge over the Etchmin. The span is immense. A tubular iron bridge of 155 feet span, rests upon two solid stone piers of some fifty feet in hight, one of which is connected with the left bank of the river by an iron girder bridge fifty feet in length, the same as thrown across Silk River, but of more than double the strength.

The tubular bridge, which is like a square boiler, strongly arched in the interior, is only the width of the road, on the very outer edge of which the rails are laid, and to which two iron galleries are attached for the employees of the road to pass over when necessary, and about ten feet from bottom to top—in a word, it is as it were a solid bar of iron seven feet in width by ten in depth, and of one hundred and fifty-five feet in length, laid across two stone piers, for the structure is so scientifically put together, that the immense weight of a large locomotive, on being put on it, only caused a permanent depression of an eighth of an inch in the whole span."

History of Reaping Machines.—No. 7.

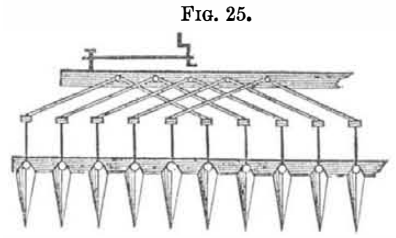
Figure 24 is an isometrical perspective view and fig. 25 a plan view of the cutters of the reaping machine invented by the Rev. Patrick Bell, of Carmyllie, Scotland, in 1826. The horses are placed behind the machine; its cutters are of the spear-shaped character; it carries a reel, and has a delivery apron, which discharges the cut grain in lines at the one side. A is the frame, B B are two large, and C C two small wheels, upon which the frame is mounted. The axle of the main wheels, B B, is so constructed as to turn with the wheels, or the wheels to turn on it. There are cross flanges cast upon the nave, which catch hold of the coupling box, E, when the machinery is to be moved, and are disengaged by the handle, F, when the machine is going, without moving the machinery. There is a coupling box at each side, and the driver standing at the handle, H, can, by moving it, operate both boxes. Upon the main axle is a bevel wheel, D, which moves two pinions, one of which turns

FIG. 24.



the crank rod, K, and the other gives motion to the coupling wheels, L L, upon the top of the frame. The crank rod, K, as the machine is pushed forward, moves the crank, M, which gives a reciprocating motion to the cutters.—N is a coupling strap of iron, connecting the crank, M, and the movable bar. O, which is kept in place by sliding hooks, P, working in sockets, Q, screwed upon a supporting plate, R. In fig. 25, the attachment of the crank to the bar, O, is shown, which exhibits the mode of giving the cutters a vibratory motion. To lessen the friction, the inventor placed two anti-friction rollers under the reciprocating bar, O,(a good idea, but not shown in the cut, and not required.) The cutter was six feet long, so that the machine cut a swath six feet wide.—In fig. 24, S S S represent an underset of cutters, or fixed blades (immovable,) which answered the same purpose as fingers, making the cut a clipping one, the upper movable cutters, U U, and the under ones, S S, acting like shears. As the wheel, D, gives motion to the coupling ones, L L, these move a horizontal

FIG. 25.



shaft having a wheel, W, on its extremity, which gears into another, X, on the end of a long roller. From this roller there passes a chain, *a*, over spoke pinions, to another roller, and around these two are placed an endless apron of canvas, so that as the grain is cut it falls upon this apron, which by its rotary motion towards the side of the machine discharges the cut grain in a line on the ground. The pole and whiffletrees of this machine were placed behind it for the horses, and the machine was moved forward, but the whiffletrees were attached to the poles for the horses to draw, and not push, a principle which all will easily understand. *e e* are two roller wheels, placed behind the wheels, C C, and inside of them, and are hung about two inches above the ground, but can be depressed by the shaft *g*, so as to bring them to the ground, to elevate the front wheels, C C, and the cutting gear, so as to allow the machine to be turned conveniently. The reel, O O, is placed exactly above the cutters, and revolves in a spindle; it has supports, *k k*, which are bent at *p p*, and *l* are the wings; this reel could be placed further forward or back, for long and short grain, by screws at *q q q*. The reel can also be elevated and lowered, as its bearings are strap boxes capable of being shifted. A belt passing over the pulley, *n*, on the reel, from one on the spindle of wheel, W, gives motion to the former one.

In this machine there is the adjustable reel (which was also in Ogle's on page 64,) clipping cutters, (each made separate,) a method of raising the cutters, and also a mode of delivering the cut grass in line on the ground, to allow any number of binders to work after it. Various trials were made with this machine in 1828 and 1829. One made in September 1828, in the presence of fifty farmers, elicited from them a signed declaration, that moved by one horse, it cut down an acre per hour of oats. In September 1829, the same machine was worked at Monckie, in the presence of a large number of persons, who also attested that it cut half an acre of heavy lodged oats in half an hour. It was also tried in a number of other places in the same year. It is described in Loudon's *Encyclopædia of Agriculture.*

Although there is unquestionable proof respecting the successful working of this machine in 1828, it does not seem to have attracted much attention, as it was lost sight of entirely until England was awakened to the utility of reaping machines in 1851, at the Great Exhibition. "The credit of effecting this (the whole English press has declared,) is undoubtedly due to American inventors, whatever may be the ground for disputing the novelty of the two rival American reapers," (McCormick's and Hussey's). After the accounts of the American reapers at the World's Fair were published abroad, it was then claimed that the American reapers were no more than copies of British reapers, and that one of Bell's machines had been early sent out to America, from which, it was hinted, the American inventors had supplied themselves with ideas. We questioned the truth of a Bell machine ever having been sent to this country and called for information on this point through our columns. On page 54, Vol. 8, SCIENTIFIC AMERICAN, Geo. K. Fuller, Esq., of Chittenango, Madison Co., N. Y., furnished the desired information, stating in a letter that one of the Rev. P. Bell's horse power reaping machines was imported by John B Yates, of that place, in 1834, and put in operation in his presence (the writer's,) superintended by Mr. Bell himself, who it seems had paid a visit to this country in that year. It reaped a level field of wheat at about the rate of an acre per hour. Two years after this Mr. Yates died, and we supppose his machine was never used afterwards. In future articles on American reaping machines, it will be shown that their inventors were not indebted to Mr. Bell, or any other foreign inventor for their ideas—that their improvement were distinctly and independently their own.

The Rubber Trade.

A correspondent of the Boston *Post*, writing from Para, Brazil, under date of Sept. 17th, says: "The American commerce of Para will this year reach about five millions of dollars, or one-third of the whole commerce of Para, and of this great valley.—This commerce consists, too, in one article whose demand is every day increasing; so much so, that instead of five millions it must very soon be twenty millions. Nor is it a less interesting fact that four-fifths of all the rubber produced here is manufactured in the United States, and that the whole increase of its trade, if properly conducted, will yield a vast wealth to hundreds in the manufacture and sale of these rubber goods in the United States.

LITERARY NOTICES.

ILLUSTRATED HYDROPATHIC REVIEW—This is an excellent work for 1855, published by Messrs. Fowlers & Wells, Broadway, N. Y., and contains an article on "Fat in Human Food," wherein the author animadverts severely and justly on the very general habit of using so much fat in cooking, especially in frying articles of food in grease.

DICKENS' HOUSEHOLD WORDS—For November, is an excellent number. It is disguised in a cover fashioned after the similitude of *Harper's Magazine*, which may be regarded as a "lick back" for the ill treatment by the Messrs. Harper's in publishing an edition of *Hard Times*, a late work by Dickens, which seems to have justly belonged to Mr. McElrath, the American publisher of *Household Words*. Mr. McElrath very pertinently defended his rights in the matter by a published statement.

THE WESTMINSTER REVIEW—The new number of this excellent Review has been promptly issued by its American publishers, Leonard Scott, & Co., Fulton st., this City. The leading article is on the "Odin Religion" (that of the old Northmen.) It contains eight original articles, every one of which is able and prfound. One on the "Character and Conditions of the Greek People," should be read by every American.

THE ILLUSTRATED NEW YORK JOURNAL—For November, contains over twenty very beautiful engravings, and the tales, sketches, miscellany, and poetry, are all very excellent and spirited. It is, taken altogether, a very fine publication.—Price 18¾ cents. P. D. Orvis, 130 Fulton st., Publisher.

JOURNAL OF INDUSTRIAL PROGRESS—Edited by Wm. K. Sullivan: monthly: Dublin, Ireland, W. B. Kelly.—This interesting exchange comes very regularly, and is very ably managed. We hope it has a good circulation.

NATIONAL MAGAZINE—For November. Carlton & Phillips, 200 Mulberry st., N. Y.—This excellent serial is choicely stored with first-rate matter. It is all the more interesting from the religious tone which pervades it.

UNIVERSAL EXHIBITION—A pamphlet containing the decrees, regulations, and instructions, in regard to the French Exhibition, can be had upon application to this office.

HALL'S JOURNAL OF HEALTH—For November, is received. It is a good number.

Inventors, and Manufacturers

The Tenth Volume of the SCIENTIFIC AMERICAN commenced on the 16th of September. It is an ILLUSTRATED PERIODICAL, devoted chiefly to the promulgation of information relating to the various Mechanic and Chemic Arts, Industrial Manufactures, Agriculture, Patents, Inventions, Engineering, Millwork, and all interests which the light of PRACTICAL SCIENCE is calculated to advance.

Its general contents embrace notices of the LATEST AND BEST SCIENTIFIC, MECHANICAL, CHEMICAL, AND AGRICULTURAL DISCOVERIES,—with Editorial comments explaining their application notices of NEW PROCESSES in all branches of Manufactures; PRACTICAL HINTS on Machinery; information as to STEAM, and all processes to which it is applicable; also Mining, Millwrighting, Dyeing, and all arts involving CHEMICAL SCIENCE; Engineering, Architecture; comprehensive SCIENTIFIC MEMORANDA: Proceedings of Scientific Bodies; Accounts of Exhibitions,—together with news and information upon THOUSANDS OF OTHER SUBJECTS.

Reports of U. S. PATENTS granted are also published every week, including OFFICIAL COPIES of all the PATENT CLAIMS; these Claims are published in the Scientific American IN ADVANCE OF ALL OTHER PAPERS.

The CONTRIBUTORS to the Scientific American are among the MOST EMINENT scientific and practical men of the times. The Editorial Department is universally acknowledged to be conducted with GREAT ABILITY, and to be distinguished, not only for the excellence and truthfulness of its discussions, but for the fearlessness with which error is combated and false theories are exploded.

Mechanics, Inventors, Engineers, Chemists, Manufacturers, Agriculturists, and PEOPLE IN EVERY PROFESSION IN LIFE, will find the SCIENTIFIC AMERICAN to be of great value in their respective callings. Its counsels and suggestions will save them HUNDREDS OF DOLLARS annually, besides affording them a continual source of knowledge, the experience of which is beyond pecuniary estimate.

The SCIENTIFIC AMERICAN is published once a week; every number contains eight large quarto pages, forming annually a complete and splendid volume, illustrated with SEVERAL HUNDRED ORIGINAL ENGRAVINGS.

TERMS! TERMS!! TERMS!!!

One Copy, for One Year	$2
" Six Months	$1
Five copies, for Six Months	$4
Ten Copies for Six Months,	$8
Ten Copies, for Twelve Months	$15
Fifteen Copies for Twelve Months	$22
Twenty Copies for Twelve Months	$28

Southern, Western, and Canada Money taken at par for Subscriptions, or Post Office Stamps taken at their par value. Letters should be directed (post-paid) to

MUNN & CO.
128 Fulton street, New York.

☞ For LIST OF PRIZES see Editorial page.

© 1854 SCIENTIFIC AMERICAN, INC.